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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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The Future of the A.B.C.M.

THE announcement, which we are able to make to-day with authority, that Mr. W. J. U. Woolcock will shortly give up the general managership of the Association of British Chemical Manufacturers and join the board of the Mond Staffordshire Refining Co., will set many people speculating as to the future of the former organisation. In a sense the change is only a personal incident, of the kind that occurs in every society from time to time, but in some cases a personality becomes so merged in an organisation that its withdrawal means a loss of something almost vital and has a serious effect on its functioning powers. Such a possibility will occur to many people on hearing of the transference of Mr. Woolcock's activities to a more directly industrial sphere. He has been the general manager of the Association for a considerable period of years; it has grown enormously in influence, machinery, and membership under his equally vigorous and tactful guidance; he has not only guided but he has inspired many of its enterprises; in all these enterprises he has commanded the unquestioning support of the whole membership; the fact that he has invariably got whatever he demanded of the industry is the best proof of the sureness of his judgment in knowing just how much it was right to ask for. It is not until such a

man disappears that the full measure of conscious and unconscious dependence on him is realised.

If, with his departure, the Association should begin to decline, no one, we are sure, would more profoundly regret such an effect than Mr. Woolcock himself. It would mean, from the purely personal point of view, the weakening of his own greatest memorial; from the point of view of the industry, it would be viewed as a misfortune. Fortunately, reflection will reassure people on the point and show that their first and natural fears need be nothing more than fears. The great work of the Association has been to establish the principle of collective action throughout the industry and to convert the firms engaged in it from isolated units into working colleagues. It has probably unconsciously prepared the way for actual amalgamation of interests. It has been able to speak with authority in matters on which the Government from time to time have desired authoritative advice, consultation, and help. These needs still remain, and it is to be hoped that the industry will recognise the importance of continuing an efficient organisation representative of the industry as a whole. Moreover, one can see no reason why the end of Mr. Woolcock's term as the chief officer of the Association should be the end of his connection with it or of his active interest and participation in its affairs. He will, one may reasonably assume, be able to retain his position on the Dyestuffs Licensing and Development Committees and his connection with certain constituent associations closely allied with the new interests he is taking up. One may imagine him finding a seat on the Council of the Association and even some day occupying its chair. These, however, are speculations as to the future. For the moment, it is enough to combine with an appreciation of Mr. Woolcock's great services to the industry, a hope, which he will fully share, that the Association he has done so much to build up shall not be allowed to suffer more than is inevitable by his vacation of its chief official post.

Publicity for British Chemicals

THE main purpose of the British Industries Fair is to secure effective publicity for British products, and the purpose of the chemical section of the Fair is to do the same for British chemical products. No one can now reasonably doubt, in the matter of chemicals at least, that this purpose is steadily being realised. One has only to look back a decade or so to realise not only the enormous expansion that has taken place in the whole range of British chemical products, but also the conversion of an indifferent repute into a reputation for high and honest quality. This broad type of publicity is not directed immediately to the booking of orders but to the creation of a favourable trade atmosphere which makes the capture and retention of contracts a much easier matter than it would otherwise be. British

chemistry has in recent times been provided with or has rather constructed for itself a new industrial and commercial platform from which it can appeal to the markets of the world. The results are beginning to show already. They will flow in more freely as time goes on and the British chemical trade position is further strengthened. The point to be remembered in the meantime is that the work that has yielded these fruits must be firmly continued until the trade victory is complete.

Sulphur Limit in Motor Fuels

THAT the motor fuels used in the United States contain small proportions of sulphur is indicated as the result of a study recently completed by the Bureau of Mines. Of 130 representative motor fuel samples collected in ten different cities in widely distributed sections, only seven samples contained more than 0.10 per cent. sulphur, which is the maximum sulphur content permitted in Federal specifications. Five samples had exactly 0.10 per cent. of sulphur.

Considerable interest has been manifested in the question of sulphur in fuels for automobile engines. Different opinions have been expressed with respect to the effect of sulphur on engine wear and engine performance. A wide difference of opinion exists as to the permissible limit of sulphur content for satisfactory operation. One of the duties of the technical Committee on Lubricants and Liquid Fuels of the Federal Specifications Board is to recommend to the Board the maximum permissible content of sulphur for motor fuels for use of Government agencies. The Technical Committee has recommended, and the Federal Specifications Board has concurred in the recommendation, that 0.10 per cent. of sulphur is a satisfactory limit, in view of all the technological and economic factors. It is stated that a large quantity of fuel containing more than 0.10 per cent. of sulphur is being sold in the United States, and that this produces no complaint from users. It has been maintained that the Federal Specifications Board should raise the limit for sulphur content of motor fuels, in order to relieve some refiners of the necessity of destroying a portion of their potential production of motor fuel in the process of removing sulphur in excess of 0.10 per cent. The Technical Committee has maintained that no hardship would accrue to the Government by keeping the upper limit for sulphur at 0.10 per cent.

To ascertain the sulphur content of motor fuels sold throughout the United States, the Bureau of Mines has made analyses of the samples collected in making the most recent gasoline survey. The results of these analyses are given in Serial 2843, by A. J. Kraemer, E. C. Lane and C. S. Luce. The tests indicated that half of the twelve samples that contained as much as 0.10 per cent. of sulphur were benzol blends. It is highly improbable that the seven samples that exceeded the specification limit for sulphur represented as much as 5.4 per cent. of the total volume of gasoline represented by the 130 samples. The tests demonstrated that the "doctor" test is of no importance, as a criterion either of sulphur content or of tendency to corrode copper, but this has been realised by refiners for several years, and is merely confirmed by these

results. Copies of Serial 2843, *The Sulphur Content of Commercial Motor Fuels*, may be obtained from the United States Bureau of Mines, Department of Commerce, Washington, D.C.

Book Received

EVOLUTION DE LA FABRICATION DE L'ACIDE SULFURIQUE PAR LE PROCÉDÉ DES CHAMBRES DE PLOMB DANS LES DERNIÈRES ANNÉES. Paris: l'Industrie Chimique. Pp. 458. 65 francs.

The Calendar

Mar.		
3	British Association of Chemists: London Section Dinner. 7 p.m.	Engineers' Club, London.
5	Society of Chemical Industry (London Section): "Syntheses under High Pressure." Professor G. T. Morgan, R. Tajlor, and T. J. Hedley. 8 p.m.	Burlington House, London.
6	Institute of Metals (N.E. Coast Section): Annual General Meeting and Exhibition of Metallurgical Preparations and Products. 7.30.	Armstrong College, Newcastle-on-Tyne.
7	Institute of Metals: Annual General Meeting, 10 a.m. Annual Dinner and Dance. 7 p.m. at the Trocadero Restaurant.	Institution of Mechanical Engineers Hall, London.
7	Society of Chemical Industry (Glasgow Section): "The Principles of Coal Cleaning." W. MacLaren. 7.	39, Elmbank Crescent, Glasgow.
7	Society of Chemical Industry (Nottingham Section): "The Formation and Structure of Cenospheres: A study of the Carbonisation of Coal in the form of Particles." F. S. Sinnatt. 7.30 p.m.	University College, Nottingham.
7	Society of Public Analysts: Annual Meeting. 8 p.m.	Burlington House, Piccadilly, London.
7	Scientific Societies of Huddersfield: Second Annual Joint Dinner.	Huddersfield.
8	Royal Institution: "Optics and Chemistry." Dr. J. J. Fox. 5.15 p.m.	21, Albemarle Street, London.
8	Society of Dyers and Colourists (Midlands Section): "Further Work with Vat Dyes." O. Mitchell. 7.30 p.m.	University College, Nottingham.
8	Oil and Colour Chemists' Association: "Notes on Aeronautical Paints and Varnishes." E. W. J. Mardles.	30, Russell Square, London.
8	Optical Society: Annual General Meeting.	Imperial College of Science, London.
8	Institution of Chemical Engineers: Conference, Sixth Annual Meeting and Annual Dinner.	New Princes Restaurant, London.
9	Institution of Chemical Engineers: Annual Corporate Meeting.	London.
9	Institute of Metals (Sheffield Section): "Special Alloys in relation to the Corrosion Problem." W. R. Barclay. 7.30 p.m.	University, Sheffield.
9	Oil and Colour Chemists' Association (Manchester Section): "Researches on the Preservation of Iron and Steel with Paint." Dr. J. N. Friend. 7.30 p.m.	Milton Hall, Manchester.
10	Royal Institution: "The Transformation of Matter." Sir Ernest Rutherford. 3 p.m.	21, Albemarle Street, London.
12	Ceramic Society: "A New Type of Tunnel Kiln Suitable for the Firing of Pottery." J. Williamson. 7.30 p.m.	North Staffordshire Technical College, Stoke-on-Trent.
12	Institute of Chemistry (Leeds Section): "The Expert Witness and the Law of Evidence." H. S. Houldsworth.	University, Leeds.
12	Institute of Metals (Scottish Section): Annual General Meeting. 7.30 p.m.	39, Elmbank Crescent, Glasgow.
14	Institute of Chemistry (Manchester Section): "Absorption Spectrography and some of its applications in Chemistry." J. Twyman.	Royal Exchange Buildings, St. Ann's Square, Manchester.

Closing Impressions of the British Industries Fair

THE British Industries Fair at the White City, like that in Birmingham, came to a close this week. Everyone speaks well of this year's exhibitions. The attendance has been satisfactory, inquiries have been numerous, and the exhibits generally have possessed a high educational value.



AN ATTRACTIVE STAND OF FINE CHEMICALS.

In view of the success of the Fair it is already announced that the Government have sanctioned a grant for next year of £25,000 for organisation and advertising. The original grant of £100,000, in sums of £25,000 annually, comes to an end this year.

On no previous occasion, so far as one can judge from inquiries, have the chemical exhibitors at the London Fair been better satisfied than on this occasion. The more central position of the chemical section has enabled visitors to inspect the exhibits more thoroughly, and so well were the various products shown that the public have been given a better idea of the meaning of chemical industry and of its pivotal place in our industrial life than ever before. This, too, has been accomplished without any reduction of the exhibition's value to the scientist and technologist, many of whom have been noticed inspecting the stands. The plant exhibits, the samples of heavy chemicals, and the artistically staged examples of fine chemicals, textiles and other fabrics illustrating the range of British dyes, and the delightful ware manufactured from synthetic resins attracted continuous attention. The old idea that an exhibitor has merely to sit at his desk and book orders is now abandoned. The Fair is recognised as an opportunity of showing a firm's products and explaining their properties to people interested. Much, of course, depends on the attendant. The more alert had no difficulty in attracting interested spectators and inquirers, and in some cases one heard, not only of "very important and promising trade inquiries," but of actual orders received.

The I.C.I. miniature cinema theatre proved an attractive educational feature, and the good attendances illustrated the willingness of people to be instructed in the chemical processes that yield so many of our essential commodities. The films shown illustrated the most modern methods of

blasting with explosives in such works as the Buxton quarries, the processes employed in the manufacture of sulphuric acid and caustic soda, the various stages in the manufacture of dyestuffs, and the remarkable results obtained by the new system of grass land management and the scientific application of chemical fertilisers.

The visits by the Duke and Duchess of York on the opening day and by the King and Queen on the following Tuesday to the London Fair attracted a large attendance. Mr. Woolcock had once more the pleasure of conducting them through the chemical section and pointing out exhibits of interest at various stands.

One exhibit in which the Queen was particularly interested was a remarkable casket, hand-made from stainless steel by ex-service men, exhibited on Hadfields' stand. This is to contain the roll of honour of the Sheffield City Battalion, and is associated with the memorial to be organised in their honour at Sarre. Its making involved no fewer than half a million blows by the craftsman responsible for it. This was but one sample of the many products that the ex-service men are now making out of stainless steel, and already a good commercial demand is growing up for many of them. There is, for example, a stainless steel light reflector, which enormously increases the length of the light beam, and is already proving of great service in railway work. Many other products, such as cake stands, salvers, and bowls worked in stainless steel, had almost the chaste and dignified look of solid silver Sheffield plate. The exhibit was a convincing object lesson in the ever-widening uses to which this metal can be applied.

The organisation of the chemical section was, if possible, even better than usual. Much of the detail was in the



A PICTURESQUE TAR EXHIBIT.

capable hands of Miss Small, whose scheme for the lay-out of the stands, the agreeable colour tones employed, and the effective grouping of the decorative effects, worked out admirably.

Birmingham Carbonisation Conference

Summary of General Conclusions

The Carbonisation Conference at Birmingham, a report of the earlier proceedings of which was given in our last issue, took place on Tuesday, Wednesday, Thursday and Friday of last week, February 21 to 24. The general conclusions to be drawn from the conference are well indicated by the following notes from a group of well-known fuel chemists.

THE keynote of the conference was the need for the further application of scientific principles to the use of the national coal resources in general and the carbonisation industry in particular. Standardisation, in regard to the size, quality, and suitability to the need of the consumer, of both fuel and refractory materials, was persistently called for. A subject of paramount importance to the nation was the basis of the sale of solid fuel. All present agreed that the obvious way was to sell solid fuel, like gas, according to its calorific value. No purchaser is concerned with the intrinsic value of fuel supplied, the only desideratum being its available heat energy. No better testimony to the value of science in industry could be found than the appreciation by gasworks and coke oven managers of the utility of scientific regulating, governing, and recording instruments in carbonisation practice. In fact, for efficient working, such devices are now regarded as essential.

The work of the chemist in the industry is one of unique importance. Although enormous strides have been made during the last two decades. Speakers well versed in carbonisation in all its branches, as well as manufacturers and technicians of refractory materials, stressed the necessity for further research. This is particularly true in the manufacture and use of silica and the preparation of suitable cokes for blast furnace operation. The enormous advantages of silica have been well demonstrated, but its disadvantages will not disappear until its applications are better understood. The properties of coke, *e.g.*, reactivity, call for much detailed investigation in connection with the iron and steel industries.

Much important work has been done recently on the blending of coal, with a view to the production of better grades of coke for both domestic and industrial purposes. Blending has frequently proved conducive to smoother retorting, leading to more rapid gas evolution and increased throughput. This avenue has not yet been fully explored.

Clean Coal

The removal of adventitious ash to the fullest possible extent, preferably at the pit-head, was advocated by the whole conference. Some gas engineers suggested the possibility of having to instal washing plant at the gasworks, as collieries were reluctant to bear the cost of such treatment. This would be somewhat of a national calamity, as it would involve transportation of large quantities of inert material both to and from cities, and the cost of disposal. Where cleaned at the pit, the shale removed is usefully disposed of as underground packing. Coke oven operators, gasworks managers, and sponsors of low-temperature carbonisation processes concurred in the opinion that the carbonisation industry of the future will be unable to dispose of its products unless it employs clean coal.

A problem of world-wide importance and influence, whose commercial implications can scarcely be assessed, was discussed from many points of view. Statisticians qualified to judge have put a minimum value of £1 per head of population as the financial benefit to be derived from efficient smoke abatement. The incalculable good which must result from a smokeless atmosphere needs no emphasis. More stringent legislation to the furtherance of this end must eventually come. The use of all fuels prepared by carbonisation is a step in this direction.

Although speakers not intimately connected with low-temperature carbonisation were willing to disparage this development as a suggested better method of utilising the national coal resources, the general feeling of the conference was that in the near future low temperature carbonisation will take its place among the recognised coal treatment industries. It must be borne in mind that the production of a solid smokeless fuel at low temperature is still a young idea, and to the far-seeing its possibilities are enormous.

A note of warning was struck in regard to the harm which

can be done to the whole of the low-temperature carbonisation industry by optimistic company promoters publishing alluring prospectuses of various low-temperature processes which may never realise all that is claimed for them. Considerable progress has been made in the commercial production of low-temperature coke, and no fears need be entertained of the stability of well-organised firms, none of whom offer unreasonably large immediate dividends to prospective shareholders. It is significant that much of this smokeless fuel is marketed in the mining areas, in face of the greatest possible competition with raw coal. The possibility of utilising waste heat at gasworks and coke ovens in carrying out low-temperature carbonisation was stated.

In a national emergency the maintenance of various vital supplies would be materially aided by both high and low-temperature carbonisation.

Throughout the conference, the need for more general co-operation and less competition in the whole industry, was felt to be necessary to its proper development. The various interests agreed that their ends would be served by a round table conference at which all facts could be revealed in an atmosphere of mutual trust.

G. C. F. S. D. G. S.

Summary of Chemical Papers

On Tuesday, February 22, the following papers were read and discussed: "The General Scope of the Coke Oven Industry," by C. P. Finn and R. Ray; "Modern Coke Oven Practice," by G. J. Greenfield and G. H. Harrison; and "Coke Research and the Steel Industry," by E. C. Evans. On Thursday, February 23, a visit was made in the morning, at the invitation of the Birmingham Gas Committee, to the Birmingham Gas Department. In the afternoon three papers were presented: "The Production of Blue and Carburetted Water Gas in Vertical Retorts," by T. F. E. Rhead; "Gas-Works Refractories," by A. T. Green; and "Gas-Works Effluents," by Dr. A. Parker.

Gas-Works Effluents

In the latter paper, Dr. Parker concluded that improvements in the composition of ammonia liquor and effluent liquor as regards obnoxious constituents should result from modifications in the condensing and scrubbing systems, designed (1) to remove the major portion of the tar before the liquor condensed; (2) to effect the early separation of tar and liquor; and (3) to ensure minimum circulation of ammonia liquor in contact with gas. The main points raised in the discussion were that the effluent difficulty might be dealt with by (a) methods of rendering innocuous the effluent, and (b) by modifying the method of carbonisation to yield less effluent. The latter was the better alternative. The matter of effluent disposal was a difficult problem for each gas-works, as conditions varied enormously.

On the closing day of the conference (Friday, February 24), the chair was taken by Dr. F. A. Freeth, F.R.S. (of I.C.I.). In the morning, papers were read by Sir Arthur Duckham, on "The Handling, Preparation and Utilisation of Gas-Works Coke," and by Mr. J. Roberts, on "Blending in the Gas and Coke Oven Industries." In the afternoon, there was a discussion on low-temperature carbonisation, which was initiated by Mr. F. S. Sinnatt, of the Fuel Research Station, in a paper entitled "A General Review of Low-Temperature Carbonisation." Mr. Sinnatt stated that over two hundred methods of low-temperature carbonisation had been projected. Sixteen processes had a large scale plant working in this country or in course of erection. These processes could broadly be divided into two classes, (1) where external heating was employed, (2) those using internal heating; and they could subdivide according to the motion of the charge. Of the processes enumerated, twelve produced lump fuel. Suitability of the product for domestic use was of great importance.

The gases produced were eminently suitable for many industrial purposes, but opinions were not unanimous as to the relative efficiencies of such gases. The low-temperature tar was a possible source of valuable phenolic and other bodies, and at worst could be used as fuel oil. High-class lubricants had been prepared from low-temperature tar. The pitch produced was quite suitable for briquetting, but the ammonia recovery was a charge on the process. Of the sixteen processes mentioned, five had been tested at the Fuel Research Station, and all of them had fulfilled the claims of their inventors.

Some of the objections raised in the subsequent discussion were the heavy capital cost; that over-production in the oil fields would seem to indicate that the liquid products of low-temperature carbonisation would be of somewhat problematical value; and that there would be difficulty in selling low-temperature coke in mining areas where coal was cheap.

A more optimistic note was struck by most of the remaining speakers. Several, intimately connected with low-temperature processes, indicated that their concerns were in very healthy circumstances; one firm whose output was constantly increasing, was instanced as producing 200 tons of solid smokeless fuel daily. It was significant that some of their best markets were in the mining areas. A representative of a low-temperature concern placed on record his opinion that the low-temperature industry must stand on its own feet.

Professor Kendall Appointed to Edinburgh Chair

It is announced that the chair of chemistry in the University of Edinburgh, which will become vacant at the end of the current academic year by the resignation of Sir James Walker, has been offered by the Curators to Professor James Kendall, F.R.S., professor of chemistry in New York University, who has accepted it. Professor Kendall was born in Surrey, and is 39 years of age. He was educated at Edinburgh University, and subsequently carried out research at various places in Europe, including the Nobel Institute, Stockholm. In 1913, he became instructor in chemistry in Columbia University, in the United States, and in succeeding years received various promotions, finally becoming professor in 1926. In the war he served as a liaison officer with the Allied forces as regards naval gas warfare. He has published a large number of original papers on inorganic and physical chemistry. He was elected a Fellow of the Royal Society in 1927.

"Pinking" and "Non-Pinking" Fuels

In a paper read before the Institution of Petroleum Technologists on Tuesday, Professor R. V. Wheeler and Dr. G. B. Maxwell discussed the "Flame Characteristics of Pinking and Non-Pinking Fuels." The problem of "pinking," which occurred in internal combustion engines under conditions of high compression, has been studied from the point of view of the movement of the flame. Various mixtures were studied, including pentane and air, benzene and air, and also pentane and air mixtures to which had been added lead tetraethyl as an "anti-knock." As a result of these investigations, it was found that in a pinking explosion, such as those of pentane-air mixtures at high initial pressures, a delay occurred in the completion of the combustion process initiated in or just behind the flame front. It would seem as though some additional impetus were required to cause the completion of the reactions. In a non-pinking explosion, such as those of benzene-air mixtures, there was no delay in the completion of the combustion reactions, but they were continuous (and long-continued) behind the flame-front.

King Edward's Hospital Fund Lectures

A popular talk on "Liquid Air," with experiments and demonstrations, will be given by Mr. A. J. Philpot at the Polytechnic, Regent Street, London, on March 30, this being one of a series of Friday Popular Talks on Science and Invention, arranged by the King Edward's Hospital Fund for London. The chair will be taken by Professor Winifred Cullis. Tickets, 2s. 6d. and 5s. for each lecture, may be obtained from King Edward's Hospital Fund for London, 7, Walbrook, London, E.C.4, from the Polytechnic, Regent Street, or from the usual agencies without booking fee. School parties of not less than ten will be admitted at half price.

A Bookman's Column

DR. JAMES F. NORRIS, of the Massachusetts Institute of Technology, who holds the title of director of the research laboratory of organic chemistry, in charge of graduate students in chemistry, has assumed the consulting editorship of the International Chemical Series. This series, which now comprises upward of 30 titles, was first undertaken in 1910 by the McGraw-Hill Book Co., under the consulting editorship of the late Dr. H. P. Talbot. The first books published in this series were Dr. Norris's *Principles of Organic Chemistry* and Dr. H. P. Cady's *Inorganic Chemistry*. Dr. Norris was president of the American Chemical Society in 1925 and 1926.

Among the books to be published shortly by Ernest Benn, Ltd., are the following: *Industrial Catalysis*, by Stanley J. Green, research chemist to British Celanese, Ltd.; *The Chemistry of Clemotherapy*, by Dr. G. Malcolm Dyson; *Evaporating, Condensing and Cooling Apparatus*, Explanations, Formulae and Tables for Use in Practice, by E. Hausbrand. The latter book is the fourth English edition, revised and enlarged by Basil Heastie. In addition to the above, it is hoped to produce soon the first volume of *The Chemical Age Dictionary of Organic Compounds*, edited by Alwyne Meade.

J. and A. Churchill have just issued *Oils, Fats and Fatty Foods*, by Mr. E. Richards Bolton, president of the Society of Public Analysts. This book is the second edition of the work originally entitled *Fatty Foods*, by Bolton and Revis. The new edition is considerably enlarged, and contains a chapter on "Vitamins," written by Professor J. C. Drummond. The same publishers are also issuing a second edition of *Recent Advances in Biochemistry*, by John Pryde, M.Sc., and a *Laboratory Manual for the Detection of Poisons and Powerful Drugs*, by Dr. W. Autenrieth. The latter volume is in its sixth edition, translated from the fifth German edition.

Many senior travellers have discovered America, but the rôle of Columbus has not often been assumed by an English undergraduate. Mr. John A. Benn was one of the first to play that part. Leaving Harrow for Princeton University, U.S.A., he saw everyday life as an ordinary "American" student before returning to finish his education at Cambridge. He makes his bow as an author with *Columbus—Undergraduate*, just published by Ernest Benn (pp. 149, 6s.), which is attracting attention. A lively account of student life—football, lectures, and college "rags"—forms a background for comparison with the English university, while the real outlook of American youth on economics, prohibition, and the League of Nations is described from first-hand knowledge. In view of the several scholarships founded in the last few years, this book fills a real need in revealing the American university to the English public.

The critical nature of the coal problem invests books dealing with coal with a special interest. Sir Isaac Pitman and Sons have published *Coal Carbonization: High and Low Temperature*, by John Roberts (pp. 406, 25s.), a treatise on the principles and processes of manufacturing coke and semi-coke. After a discussion of the origin of coal (especially anthracite), the author deals with matters relating to carbonisation (such as coking and non-coking coals, the coking process, the plastic layer, pre-heating, coal blending, etc.). Seven chapters are then devoted to low-temperature carbonisation and eight to high-temperature carbonisation, both subjects being dealt with exhaustively. The closing chapters of the book are devoted to by-product recovery, gasworks practice (three chapters), the manufacture of semi-coke in bulk, and the production of oils from coal. "Given the necessary incentive," states the author, "British carbonising firms could produce sufficient smokeless domestic fuel to replace the 35,000,000 tons of raw coal now being used in domestic grates. The incentive required is a law prohibiting the use of raw smoky coal after a stipulated period of, say, five years."

Recent Work on Sugars

Papers at Birmingham

THE fourth meeting of the session of the Birmingham and Midland Section of the Society of Chemical Industry was held at the University of Birmingham on February 16, Mr. W. T. Collis presiding. Two lectures were given: "Recent Developments in the Study of the Pentose Group of Sugars," by Dr. E. L. Hirst, and "Glucosides," by Dr. W. J. Hickinbottom. Dealing with recent developments in the chemistry of the pentose group of sugars, Dr. Hirst pointed out that the sugars belonging to the pentose group had played an important part in the development of sugar chemistry and at the same time were of very considerable interest to the industrial chemist. Of the four aldopentoses, xylose and arabinose are widely distributed in nature, where they occurred respectively as xylan in wood, straw, esparto, etc., and as araban in gum arabic. Methods by which the oxide ring structure of a typical pentose could be ascertained were discussed.

In the lecture by Dr. W. J. Hickinbottom on "The Glucosides," the simple alkyl glucosides were referred to briefly. The lecturer discussed the more important glucosides derived from natural sources. A number of these, he said, such as salicin, arbutin, methylarbutin, digitalin, strophanthin, etc., were of considerable medicinal importance. Others yielded dyestuffs on hydrolysis, and for this reason had been used commercially. Of these indican was of utmost importance until comparatively recently—being the source of all the natural indigo of commerce. The glucoside was a colourless crystalline substance soluble in water, and on hydrolysis gave glucose and indoxyl, the latter oxidising in presence of air to yield indigo. Ruberythric acid, the principal glucoside of the madder plant, was used as the source of alizarin, until it was displaced by artificial alizarin. Other glucosides yielding colouring matters of the flavonol group were also mentioned. The methods employed in the synthesis of some of the natural glucosides were mentioned. The lecturer concluded by reviewing recent experimental work in the University of Birmingham, on the synthesis of glucosides. He announced that satisfactory methods for the preparation of α -glucosides and α -galactosides had been devised, and also new methods for the introduction of the glucose residue.

Laboratory Methods in Industry

THE fifth meeting of the Nottingham Section of the Society of Chemical Industry was held on Wednesday, February 22, at University College (Dr. E. B. R. Prideaux in the chair), when Mr. F. H. Carr (president of the Society of Chemical Industry) gave a lecture on "Laboratory Methods in Industry: The Manufacture of Unstable Chemicals."

Mr. Carr showed how chemical industry developed with progress in engineering, the latter giving greater degree and delicacy of control to the various industrial processes. The technique of certain fundamental industrial operations was indicated by slides, such as those required for thorough mixing of liquid reagents, the carrying out of low-temperature reactions, fractional and vacuum distillation, drying of product etc. Many important industrial processes had been discovered as the result of experiments on unorthodox lines. Those engaged in science were in perpetual danger of lapsing into dogmatism. They needed to keep their minds fresh for bold experiments. Very often it was the scientifically unexpected which became the keystone of some important industry. Courage and imagination were needed. Industry required first-class brains, but not of the type that were hide-bound by book knowledge, and theoretical conceptions. They had ample material to work with, but they must be prepared to direct their experiments with imagination and to carry out much of the work with their own hands.

An excellent discussion followed, in which the chairman, Professor Kipping, Dr. Pyman, Mr. Anderson and others took part.

I.C.I. Offer to Tees Salt Co. Accepted

THE offer made on February 15 to the shareholders of the Tees Salt Co., Ltd. to exchange their shares for shares of Imperial Chemical Industries, Ltd., has been accepted by holders of over 75 per cent. of each class of capital of the former company, and transfers for the carrying out of the exchange are being issued.

Chemical Matters in Parliament

Lead Tetraethyl

In a reply to Lieut.-Commander Kenworthy (House of Commons, February 23), Sir W. Joynson-Hicks stated that the effect on the public health of the use of tetraethyl lead in petrol was a matter outside the jurisdiction of the Home Office, but in view of the possibility that special measures might have to be taken to protect factory workers, the Home Office had been following closely the investigations carried out in the United States. He understood that there was no evidence that the use of this substance was injurious to health. It was not the case, so he was informed, that regulations were imposed in the United States as to the use of this substance, but instructions were issued to the companies supplying it, and the same was done here.

Department of Scientific and Industrial Research

In the course of a reply to Mr. Charles Edwards (House of Commons, February 28) Mr. Baldwin, in reference to the Department of Scientific and Industrial Research, stated that it was throwing an undue burden on the Minister of Education to expect him to deal with every question which affected a Department for whose administration he was not responsible. A change had therefore recently been made under which any questions relating to the Department asked in the House of Commons, would be answered by the Minister most directly concerned.

Lead Tetraethyl Inquiry

Replying to Lord Buckmaster (House of Lords, February 29), the Marquis of Salisbury said that the Government recognised the risk attaching to the use of lead tetraethyl in motor spirit. So far, however, there was no case of lead poisoning in England in consequence of the blending with motor spirit. Research of a careful character was necessary, and the Government were going to appoint an inter-departmental committee, consisting of representatives of the Ministry of Health and the Home Office and the Medical Research Council.

Chemical Opinions on Ethyl Petrol

Sir William Pope and Professor Baker

WITH regard to the appearance on the English market, in the last few weeks, of ethyl petrol (*e.g.*, petrol treated with one part in thirteen hundred of lead tetraethyl, to prevent "knocking"), letters have appeared in *The Times* from Sir William Pope, professor of chemistry at Cambridge, and Professor H. B. Baker, president of the Chemical Society. After referring to the poisonous nature of lead tetraethyl, Sir William Pope states that "at the present time elaborate regulations are in force for the purpose of protecting a comparatively small number of painters, pottery glazers, and the like from the hazards of lead poisoning; it thus seems the more remarkable that lead tetraethyl can suddenly be placed in the hands of hundreds of thousands of users without an exhaustive official examination under the auspices of the Ministry of Health or the Home Office and without the imposition of special official regulations covering its sale and use."

Following the appearance of Sir William Pope's letter, Professor H. B. Baker wrote to point out that "this substance (lead tetraethyl) does not act on the body as an ordinary lead poison, but it has a specific action which is very much more harmful. Lead tetraethyl passes rapidly through the skin, is absorbed by the blood, and causes very severe nervous trouble. If sufficient is absorbed death occurs in a few weeks. I may mention that one of my students, working on the substance in an American laboratory, with full knowledge of its danger, and using all the precautions which that knowledge enjoined, was very seriously affected and his illness lasted several months. The extent of its dilution in motor spirit matters little; lead tetraethyl has a high boiling point, and if the mixture comes in contact with the hands (even in flooding a carburettor this is often unavoidable) the volatile petrol will evaporate, leaving a film of the tetraethyl on the skin. Though the ordinary motorist would thus be in danger, his risk would not compare with that of those who serve in garages. I wrote, as president of the Chemical Society, to the Ministry of Health more than a month ago calling their attention to the urgency of the matter. So far as I know nothing has been done."

From Week to Week

SIR HUGH BELL has resigned from the Dock and Harbour Authorities Association.

MR. W. H. F. MATTINSON has been appointed managing director of the Monroe Chemical Co., Ltd., in place of Mr. Thomas B. Wall.

UNIVERSITY NEWS.—*Cambridge*: Dr. N. J. T. M. Needham, of Caius College, has been appointed University Demonstrator in Biochemistry for three years.

SIR JAMES IRVINE, F.R.S., principal of the University of St. Andrews, will be present at the meeting of the Institute of Chemistry of the American Chemical Society at Evanston, Illinois, from July 23 to August 18.

BY THE DEATH of Mrs. Donald, widow of Mr. James Donald, a former Glasgow chemical manufacturer, the Royal Technical College, Glasgow, becomes entitled to a bequest of securities valued in 1905 at £20,000.

DIFFERENT WAYS in which CHEMISTRY is applied to public service were described by Mr. F. G. Edmed, an Admiralty chemist, of Portsmouth Dockyard, in an address given at a luncheon of the Brighton and Hove Rotary Club on Wednesday, February 23.

NORDAC, LTD., are, as from February 24, carrying on the business of Norman Swindin, chemical engineer and manufacturer of chemical rubber plant, at Reno Works, Wealdstone, Harrow, Middlesex. Mr. Norman Swindin is managing director of the company.

THE DIAMOND FERTILISER AND CHEMICAL CO., LTD., of York, announce that they have opened out a department dealing with the sale of Belgian cement, and that their trade will be done with wholesale merchants only for shipment in cargo loads all round the coast.

A PAPER ENTITLED "Syntheses under High Pressure," by Professor J. T. Morgan, Mr. R. Taylor, and Mr. T. J. Hedley, will be read at a meeting of the London Section of the Society of Chemical Industry at Burlington House, on Monday, at 8 p.m.

PROFESSOR D. D. JACKSON, head of the department of chemical engineering in Columbia University, has accepted the chairmanship of the co-ordinating committee which is in charge of the visit of British chemists and chemical engineers to Canada and the United States next August.

A MEETING OF THE DEBENTURE HOLDERS of the Aguas Blancas Nitrate Co., Ltd., was held at River Plate House, London, on Friday, February 24, when a resolution approving the liquidation of the company's assets and reconstruction under the name of Aguas Blancas Nitrate Co. (1928), Ltd., was approved.

A LECTURE ON THE SUBJECT of "Optical Aids to Chemical Analysis" was delivered by Dr. Stotherd Mitchell in the Physical Chemistry Department of Glasgow University on Saturday, February 24, under the auspices of the Workers' Educational Association. Dr. Mitchell dealt briefly with the spectroscope, the refractometer, the interferometer, and the polarimeter.

THE NEW ISSUE OF THE LIST of "Fairs and Exhibitions" published by the International Chamber of Commerce has just appeared. It covers the period of January-June, 1928, and contains detailed information on more than 550 Fairs or Exhibitions to be held in 48 countries. All inquiries should be addressed to the International Chamber of Commerce, 38, Cours Albert 1er, Paris.

A COPY OF *The Staveley Company's Magazine* has been received from the Staveley Iron and Coal Co., Ltd. In addition to personal notes there are numerous photographs of the company's works and an article on "Foundry Practice at the New Works." It is stated that it is necessary to control carefully all melting operations and to check both supplies of materials and products made in the works, and as an aid to this there is a laboratory where a daily analysis of cast iron is obtained from samples as it comes from the cupolas, and also of all special mixtures that are made.

SIR THOMAS ROBINSON, presiding at the annual general meeting of the Bradford Dyers Association on Wednesday, stated, in reference to the termination of existing wage agreements in the dyeing industry: "We cannot see any benefit to our employees arising out of the termination of these long-standing agreements. On the other hand, we have no reason to think that the peace of the industry will be disturbed by any hasty or ill-considered action on either side." One satisfactory feature of the year, he said, had been the rapid expansion in the production of fabrics containing artificial silk.

BEET SUGAR NEWS.—It is announced that a contract has been signed between the Second Lincolnshire Beet Sugar Co. and Sir Robert McAlpine and Sons for the construction of a beet sugar factory at Brigg, Lincolnshire, at a cost of £300,000. The new factory, which will have a minimum capacity of 700 tons per day, will be constructed from the designs of an American company and will be ready for handling the 1928 beet crop.—Presiding at the annual meeting of the National Association of Fishery Boards in London on Friday, February 23, Lord Gainford pointed out that in two cases sugar beet effluent had been treated so that harmful results to fish life had been minimised.

INDIAN INDIGO EXPORTS for December, 1927, amounted to 210 cwts., making 1,835 cwts. for the year.

CHARGED WITH AGITATING and organising a hostile demonstration against Sir Alfred Mond at Baghdad, Yussuf Effendi, formerly a teacher, has been taken to Basrah for trial.

THE FRIDAY EVENING Discourse at the Royal Institution on March 23 will be given in English by Dr. Ernst Cohen, on "A Physical Chemist in Search of Purity in an Impure World."

A SCHOOL HAS BEEN OPENED at Newton Heath, Manchester, under the auspices of the Institution of the Rubber Industry, to provide special training for youths who wish to enter the rubber industry.

MR. STANLEY SADLER, managing director of Sadler and Co., Ltd., chemical manufacturers, Middlesbrough, has been nominated Conservative candidate for the Parliamentary by-election in Middlesbrough West Division.

AN INCREASE IN THE ASSESSMENT of the works of Synthetic Ammonia and Nitrates, Ltd., at Billingham, by £18,000, was intimated by the Rating and Valuation Committee, at a meeting of the Billingham Urban District Council on Wednesday evening.

DR. W. H. COATES, treasurer of Imperial Chemical Industries Ltd., on Thursday, February 23, read a paper entitled "Present Day Tendencies of Industrial and Commercial Development" to the Liverpool District Society of Incorporated Accountants, at the Reform Club.

AN IMPORTANT CONTRACT has just been placed with Babcock and Wilcox, Ltd., for 62 electric cranes and a coaling plant with a further two electric cranes for the new port works at Recife, Brazil. The firm have also received a further order for 22 electric cranes to be erected at Ilindini Harbour, Kenya Colony.

L'Industrie Chimique and the *Revue Générale des Matières Colorantes*, the well-known French chemical journals, have been merged as from January 1, 1928, and appear under the joint title. Professor Wahl, who was editor-in-chief of the dyestuff journal, will continue to deal with this aspect of the joint publication.

THE DISCOVERY OF AN AMALGAMATION PROCESS for the recovery of platinum from oxide ores is reported to have been made by Mr. J. Eklund and Mr. D. Enzlin, South African mining engineers. It is claimed that this process would enable South Africa to supply the world's platinum requirements at about £4 per ounce.

THE HOME SECRETARY CALLS THE ATTENTION OF occupiers of works in which cinematograph film is manufactured or handled to two new codes of regulations which have been made to meet the risks from fire in connection with these processes. These comprise regulations for manufacture, Statutory Rules and Orders, 1928, No. 82; and film stripping regulations, No. 84.

THE FARADAY SOCIETY held a meeting on Wednesday, at which the following papers were read among others: "The Kinetics of the Hydrolysis of Certain Glucosides (Salicin, Arbutin, and Phlorizin)," by E. A. Moelwyn-Hughes; "The Reactivity of Glucose in the Presence of Hydrochloric Acid, Part I," by the same author; "Vapour Pressure and Heat of Dilution of Aqueous Solutions, Part V.—Activity," by E. P. Perman; and "The Dissociation of Sodium Sulphate Decahydrate," by E. P. Perman and W. D. Urry.

THE VAN DORN ELECTRIC TOOL CO. has been acquired by the Black and Decker Co., who have specialised in the manufacturing and marketing of portable electric drills and other associated tools, and are closely connected with the motor car trade. The bringing together of these two interests will result in a close-knit organisation capable of serving the automotive and industrial fields with complete and high quality lines of electric tools. Colonel W. V. Franklin, managing director of Black and Decker, announces that there will be no changes in personnel or general activities of the two organisations.

ARTIFICIAL SILK NEWS.—With the object of manufacturing artificial silk yarns by any process, and especially fine-grade artificial silk yarns by the Viscose process, a new undertaking, styled North British Artificial Silk Ltd., has been formed, with a capital of £385,000, in 345,000 10 per cent. participating preferred ordinary shares of £1 each and 800,000 1s. deferred ordinary shares. There were offered on Tuesday for subscription at par the whole of the former shares and 345,000 of the latter; the remaining 455,000 deferred ordinary shares have been subscribed at par for cash. The company's plant will be situated at Jedburgh. The chairman and managing director is Mr. E. Walls, lately a managing director of Lever Brothers, Ltd. Dr. J. N. Goldsmith has been appointed consulting chemist to the company.

Obituary

MR. F. C. CLAYTON, "Father" of the Birmingham City Council and formerly partner in the firm of J. and E. Sturge, pharmaceutical chemical manufacturers, at Birmingham on Wednesday, February 22.

MR. THOMAS ROBINSON, aged 89, on Friday, February 23. He was formerly a director of Robinson and Hunter, chemical manufacturers, Glasgow.

References to Current Literature

British

- ANALYSIS.**—A method for the determination of citral and similar aldehydes. L. G. Radcliffe and W. J. N. Swann. *Perfumery and Essential Oil Record*, February 21, pp. 47-51.
- DYEING.**—Wetting-out agents and other auxiliary products used in dyeing and calico printing. E. J. Rath. *J. Soc. Dyers and Colourists*, February, pp. 41-47.
- The colouring and finishing of leather. M. C. Lamb. *J. Soc. Dyers and Colourists*, February, pp. 47-49.
- Humidity and the fading of dyestuffs on wool. J. J. Hedges. *J. Soc. Dyers and Colourists*, February, pp. 52-54.
- ESSENTIAL OILS.**—The constituents of some Indian essential oils. XXII. The essential oil from the flower heads of *Cymbopogon coloratus*, Stapf. P. P. Pilley, B.S.Rao, and J. L. Simonsen. *J.S.C.I.*, February 24, pp. 52-54T.
- GENERAL.**—The degradation of cellulose by sulphite acid. W. H. Birchard. *J.S.C.I.*, February 24, pp. 49-52T.
- Oil, coal and by-products. W. Hunter. *J. West of Scotland Iron and Steel Institute*, Vol. 35, Part 2, pp. 10-19.
- WOOL.**—The action of formaldehyde on wool. S. R. Trotman, E. R. Trotman and J. Brown. *J. Soc. Dyers and Colourists*, February, pp. 49-52.
- The action of acids on wool. S. R. Trotman, E. R. Trotman and J. Brown. *J.S.C.I.*, February 24, pp. 45-49T.

United States

- APPARATUS.**—A resistance wire to be used in the chemical laboratory. J. Piccard. *J. Amer. Chem. Soc.*, February, pp. 406-408. Shows that white gold, which has already partially replaced platinum in jewellery, replaces it advantageously in the alternating current Wheatstone bridge when the latter is used in a chemical laboratory, where constant corrosion too rapidly.
- CATALYSIS.**—The catalytic activity of metallised silica gel. IV. The oxidation of methane. L. H. Reyerson and L. E. Swearingen. *J. Phys. Chem.*, February, pp. 192-201.
- Catalytic oxidations in aqueous solutions. II. The oxidation of primary alcohols. N. A. Milas. *J. Amer. Chem. Soc.*, February, pp. 493-499. Vanadium pentoxide, in dilute sulphuric acid solution, induces the oxidation of methyl, ethyl, *n*-propyl, etc., alcohols, acetal, and mixtures of equimolecular proportions of paraldehyde and ethyl alcohol and paraldehyde and *n*-butyl alcohol with chlorates to give esters.
- GENERAL.**—The volume changes attendant on mixing pairs of liquids. J. B. Peel, W. M. Madgin and H. V. A. Briscoe. *J. Phys. Chem.*, February, pp. 285-292.
- Separations by the ionic migration method. J. Kendall. *Science*, February 10, pp. 163-167.
- ORGANIC.**—The tautomerism of hydroxy quinones. L. Fieser. *J. Amer. Chem. Soc.*, February, pp. 439-465.
- 2-Hydroxy-1 : 4-anthraquinone. L. F. Fieser. *J. Amer. Chem. Soc.*, February, pp. 465-474.
- The action of sodium-potassium alloy on petroleum. J. B. Conant and A. H. Blatt. *J. Amer. Chem. Soc.*, February, pp. 542-550.
- The action of sodium-potassium alloy on certain hydrocarbons. J. B. Conant and A. H. Blatt. *J. Amer. Chem. Soc.*, February, pp. 551-558.
- A preparation method for benzophenone. G. Dougherty. *J. Amer. Chem. Soc.*, February, pp. 571-573.

German

- ANALYSIS.**—A potentiometric method for the determination of iron. J. Mika. *Zeitschrift für Elektrochemie*, February, pp. 84-86.
- Advances in gas analysis in the years 1922-27. P. Raszfeld. *Chemiker-Zeitung, Fortschrittsberichte*, February 8, pp. 1-10.

DYESTUFFS.—Potentiometric indication in the preparation of azo-dyes. F. Müller. *Zeitschrift für Elektrochemie*, February, pp. 63-65.

The sensitiveness of dyestuffs to light. II. A. Steigmann. *Kolloid-Zeitschrift*, February, pp. 173-175.

Contribution to the knowledge of basic triphenylmethane dyestuffs. I. K. Brand and A. Modersohn. II. K. Brand and G. Schuck. *J. praktische Chem.*, Vol. 118, Parts 4-7, pp. 97-122, 123-137.

GENERAL.—The action of acids on metals under high pressure. G. Tammann and K. Bochow. *Zeitschrift anorganische Chem.*, Vol. 169, Parts 1-3, January 25, pp. 33-41.

The behaviour of cellulose towards acids. P. E. Altmann. *Chemiker-Zeitung*, February 22, pp. 150-151.

The solubility of the components of glass. W. Meyer. *Chemiker-Zeitung*, February 22, p. 151.

X-ray tubes for tests of material. Du Bois. *Chemiker-Zeitung*, February 4, pp. 102-103.

Report on advances in the preparation of feed water in the years 1925-27. K. Hofer. *Chemiker-Zeitung, Fortschrittsberichte*, February 8, pp. 10-18.

INORGANIC.—The electrolytic formation of dithionate. O. Essin. *Zeitschrift für Elektrochemie*, February, pp. 78-84.

ORGANIC.—The manufacture of synthetic acetic acid in France. *Die Metallborse*, February 15, pp. 344-345.

The action of bromine on naphtholsulphonic acids. A remarkable colour phenomenon in solution. G. Heller. *Zeitschrift angewandte Chem.*, February 18, pp. 171-177.

SUGAR.—Phase Rule investigations on the desaccharification of molasses. I. The ternary system strontium oxide-saccharose-water. G. Grube and M. Nuszbaum. *Zeitschrift für Elektrochemie*, February, pp. 91-98.

Miscellaneous

ANALYSIS.—The colorimetric determination of nitrotoluene in nitrobenzene. H. Muraour. *Bulletin Soc. Chim. France*, January, pp. 71-73 (in French).

The volumetric determination of organic substances completely oxidisable by chromic acid mixture, in the presence of silver nitrate. H. Cordebard and V. Michel. *Bulletin Soc. Chim. France*, February, pp. 97-106 (in French).

The iodimetric determination of phosphorous acid, and the use of sodium bicarbonate in iodimetry. P. Carré. *Comptes Rendus*, February 13, pp. 436-438 (in French).

DYESTUFFS.—The formation of azo-compounds. A. Wahl. *Revue Matières Colorantes (in L'Industrie Chimique)*, January, pp. 1-12 (in French).

GENERAL.—The rectification of turpentine. A. Bresser. *Chemische Rundschau*, February 21, pp. 27-29 (in German).

INORGANIC.—A method of making barium hydroxide from the carbonate. P. Baud. *Comptes Rendus*, February 13, pp. 438-441 (in French).

ORGANIC.—The autoxidation of benzaldehyde. P. A. A. van der Beek. *Recueil Travaux Chimiques Pays-Bas*, February 15, pp. 286-300 (in English).

The autoxidation of benzaldehyde in the presence of acetic anhydride. P. A. A. van der Beek. *Recueil Travaux Chimiques Pays-Bas*, February 15, pp. 301-308 (in English). The greater part of the melting point curve for benzaldehyde-acetic anhydride has been determined, phosphorous trichloride serving as catalyst. Besides the well-known compound $2C_6H_5CHO, (CH_3CO)_2O$, the compound $2C_6H_5CHO, (CH_3CO)_2O$, melting at $17^\circ C.$, was met with.

The melting-point curves of the nitrobenzaldehydes in the presence of acetic anhydride. P. A. A. van der Beek. *Recueil Travaux Chimiques Pays-Bas*, February 15, pp. 309-315 (in English). Only the compounds 1 aldehyde : 1 acetic anhydride exist.

The action of acetic anhydride on carboxylic acids. A. W. van der Haar. *Recueil Travaux Chimiques Pays-Bas*, February 15, pp. 321-328 (in German).

The action of aniline on vanillin. P. Carré and P. Badanger. *Bulletin Soc. Chim. France*, January, pp. 73-74 (in French).

Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

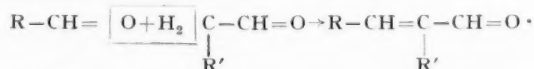
Abstracts of Complete Specifications

- 284,450. NEUTRAL TO WEAKLY ACID WATER SOLUBLE SILICIC ACID COMPOUNDS, PROCESS FOR PREPARING. J. A. von Wulffing, 231, Friedrichstrasse, Berlin, S.W. 48, and A. Busch, 2, Blucherstrasse, Braunschweig, Germany. Application date, January 11, 1927.

Sodium meta-silicate and poly-silicate have the disadvantage for medical purposes in that their aqueous solutions have an alkaline reaction. In this invention an alkali metal poly-silicate is combined with casein or albumen substances, i.e., substances which with dilute alkali solutions yield neutral alkali metal salts such as nucleo albumens or albuminates and as much alkali as is necessary to form the meta-silicate. The products are neutral to weakly acid, and are obtainable in dry form which does not absorb water but is easily soluble in warm water. In an example, a suspension of casein in water is treated with a concentrated solution of sodium meta-silicate which may be prepared from water-glass by adding sodium hydroxide. A solution of neutral or weakly acid reaction is obtained, and the solution is reduced to dryness in vacuo and finely ground. Alternatively, the casein may be suspended in alcohol. An example is also given of the use of an albuminate instead of casein.

- 284,458. UNSATURATED ALDEHYDES, MANUFACTURE OF. O. Y. Imray, London. From I.G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. Application date, January 19, 1927.

It is known that benzaldehyde may be converted into 1-oxo-2-methyl-3-phenylpropen-2, (α -methyl-cinnamic aldehyde) by dissolving in alcohol, adding water, and treating with propionic aldehyde and caustic soda solution. Under these conditions, 3-nitrobenzaldehyde can be condensed with propionic aldehyde and *n*-butylic aldehyde, but non-nitrated aromatic aldehydes cannot be condensed with the higher homologues of propionic aldehyde in the presence of alkali solution. In this case aldols are formed and not 1-oxo-2-alkyl-3-arylpropen-2. In this invention, the formation of aldol is counteracted and the yield of 1-oxo-2-alkyl-3-arylpropen-2 is improved by progressively diminishing the proportion of water present. The process consists in condensing an aldehyde which has no CH_2 -group in 2-position to the oxo group with an aliphatic or aromatic aliphatic aldehyde which does contain a CH_2 group in the 2-position to the oxo group in the presence of an alkaline agent and an alcohol, but little or no water. The reaction is

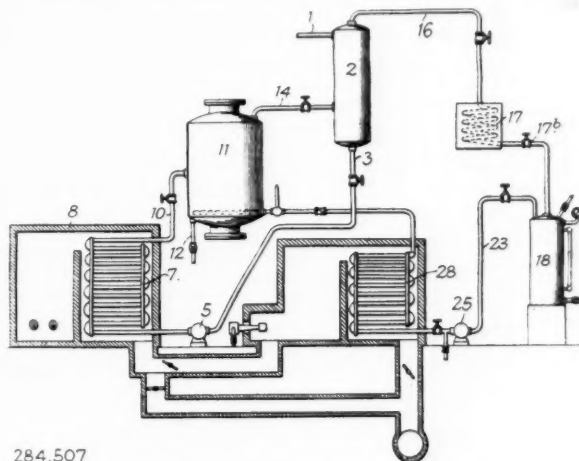


where R and R' represent organic radicles. The 1-oxo-2-alkyl-3-arylpropen-2 is characterised by a strong odour differing from that of cinnamic aldehyde. In an example, benzaldehyde is mixed with a solution of potassium hydroxide in dry ethyl alcohol and 1-oxo-propan (propionic aldehyde) is gradually added. The condensing agent and alcohol are separated, and 1-oxo-2-methyl-3-phenylpropen-2 (α -methyl-cinnamic aldehyde) is obtained with a yield of 86 per cent. Other examples are given of the condensation of benzaldehyde and 1-oxobutan (*n*-butylic aldehyde); benzaldehyde and 1-oxo-3-methylbutan (isovaleric aldehyde); 4-methoxybenzaldehyde and 1-oxobutan (*n*-butylic aldehyde); 4-methoxybenzaldehyde and 1-oxoheptan (oenanthic aldehyde); 1-oxo-2-ethylhexan and 1-oxo-heptan (oenanthic aldehyde); A large number of other aldehydes which can be condensed in this manner are given. The products are mainly new, and are perfumes.

- 284,507. CRACKING HYDROCARBON OILS, PROCESS FOR. C. P. Dubbs, 310, South Michigan Boulevard, Chicago, U.S.A. Application date, April 29, 1927.

Oil is heated and then expanded in the presence of a heated incondensable gas which facilitates the cracking. The oil is

introduced through a pipe 1 into a dephlegmator 2, where it is preheated by rising hot vapours. The reflux condensate and hot oil pass through pipe 3 and pump 5 to a heating coil 7 in a furnace 8, and thence through a pipe 10 to an expansion

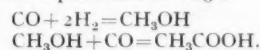


284,507

chamber 11, at a temperature of 800° – 900° F. from which the residue is drawn off through pipe 12. The vapour passes through pipe 14 to dephlegmator 2, and the uncondensed portion passes on through pipe 16 to condenser 17, and throttle valves 17b to receiver 18. Incondensable gas passes through pipe 23 and pump 25 to a heating coil 28, and thence into the expansion chamber 11, where it facilitates the cracking of oil. The gas may be heated in the coil 28 to $1,200^{\circ}$ – $1,500^{\circ}$ F., and the pressure may be 100 lb. per square inch or more.

- 283,989. OXYGEN-CONTAINING CARBON COMPOUNDS, MANUFACTURE OF. British Celanese, Ltd., and H. Dreyfus, 8, Waterloo Place, London, S.W.1, and W. Bader, of British Celanese, Ltd., Spondon, near Derby. Application date, July 20, 1926.

Specification No. 264,558 (see THE CHEMICAL AGE, Vol. XVI, p. 238) describes the production of acetic acid by heating a mixture of carbon monoxide and methyl alcohol under pressure in the presence of catalysts capable of forming acetates which split off acetic acid below 450°C . It is now found that this reaction will proceed in the presence of inorganic acids which may contain organic groups, or their acid salts. The free acid may be obtained or the ester formed by condensation with the methyl alcohol. The methyl alcohol can be replaced by methyl ether, or by substances capable of generating methyl alcohol. The temperature should be about 300° – 400°C . and pressure 100–300 atmospheres. The catalyst may be ortho, pyro, or meta phosphoric acid, boric acid, arsenic, or phosphomolybdic acid. The acid may be partly neutralised to form acid salts which must still contain free hydroxyl groups, e.g. aluminium phosphate of the composition $\text{Al}_2\text{O}_3 \cdot 12\text{H}_3\text{PO}_4$. The catalyst may be liquid or solid, and may be supported on a carrier, or sprayed or vaporised into the reaction chamber. Methyl alcohol may be replaced by methyl formate or acetate, or other esters which are capable of yielding both methyl alcohol and carbon monoxide. Similarly, methyl alcohol alone may be used, the carbon monoxide being supplied by its partial decomposition. Methyl alcohol may be replaced by substances which produce it, such as carbon monoxide and hydrogen, in which case the reaction takes place in two stages



The production of methyl alcohol as a separate product can be eliminated, and acetic acid obtained by passing carbon

monoxide and hydrogen over an acid catalyst, but previously prepared methyl alcohol is preferably used. If carbon monoxide is in excess, acetic acid is obtained, but if methyl alcohol is in excess, methyl acetate is obtained. A number of detailed examples of the process are given.

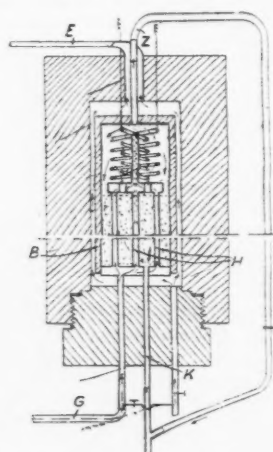
284,582. SAPONIFICATION OF ESTERS OF ORGANIC ACIDS. British Celanese Ltd., 8, Waterloo Place, London, S.W.1, and W. Bader, of British Celanese, Ltd., Spondon, near Derby. Application date, July 20, 1926.

The saponification of esters of lower fatty acids which are soluble in water especially, methyl acetate, is conducted in such a manner that concentrated or anhydrous free acids are obtained. The ester is heated with the theoretical amount of water and a strong mineral acid such as phosphoric or sulphuric acid. Methyl acetate may be saponified at 200° C. to obtain a quantitative yield of glacial acetic acid. Ortho and pyro phosphoric acid may be used, and are capable of supplying the water for the saponification, so that the reaction can be continuously effected by adding the ester and water to phosphoric acid, *e.g.*, methyl acetate vapour and steam may be passed through a chamber containing phosphoric acid at 180–250° C.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention:—257,619 (I.G. Farbenindustrie Akt.-Ges.) relating to introduction of sulphocyanide groups into organic compounds, see Vol. XV, p. 456; 258,241 (W. Demann) relating to recovery of acid and resinous matter from acid sludges from the refining of mineral oils, see Vol. XV, p. 501; 261,383 (I.G. Farbenindustrie Akt.-Ges.) relating to condensation products from thionaphthene-2:3-dicarboxylic acid, see Vol. XVI, p. 91; 263,164 (I.G. Farbenindustrie Akt.-Ges. relating to azo dyestuffs, see Vol. XVI, p. 217; 263,191 (Chemical Works, formerly Sandoz) relating to 2-amido-4-nitrophenoxy-ethanol or -propandiol, see Vol. XVI, p. 217; 265,193 (I.G. Farbenindustrie Akt. Ges.) relating to phthaloyl-2:3-thionaphthene and derivatives, see Vol. XVI, p. 361; 265,197 (Rhenania Kunheim Verein Chemischer Fabriken Akt.-Ges. and H. Brenck) relating to chemical manures, see Vol. XVI, p. 381; 265,919 (Goodyear Tire and Rubber Co. relating to vulcanizing rubber, see Vol. XVI, p. 382; 270,656 (Soc. Chimique des Usines du Rhône) relating to continuous manufacture of cellulose acetate, see Vol. XVII, p. 63.

International Specifications not yet Accepted

282,658. CATALYTIC APPARATUS. Soc. l'Etude Soc. Anon. pour l'Etude et l'Exploitation des Procédés G. Claude, 48, Rue St. Lazare, Paris. International Convention date, December 24, 1926. Addition to 268,721.



282,658

This apparatus is of the type described in Specification No. 268,721 (see THE CHEMICAL AGE, Vol. XVI, p. 558). The reacting gases enter at G and pass through tubes H embedded in the catalyst. Part of the gas then passes down-

wards through the catalyst to the outlet tube K, and the other part is drawn off through the tube Z after heating, and then mixed with the reacted gas. The tube Z may pass through the outlet tube E for the gases which surround the inner tube B.

282,629. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. International Convention date, December 23, 1926.

Bz: Bz¹-diaryl-pyranthrones are treated with condensing agents such as manganese dioxide and sulphuric acid, or aluminium chloride and sodium chloride to obtain vat dye-stuffs giving orange shades from an alkaline hydrosulphite vat.

282,634. CATALYTIC PURIFICATION OF GASES. F. Fischer, 1, Kaiser-Wilhelm Platz, Mulheim-on-Ruhr, Germany. International Convention date, December 24, 1926.

Water gas is freed from sulphuretted hydrogen and then treated with a catalyst such as silver or gold, which converts the remaining sulphur compounds in presence of hydrogen to sulphuretted hydrogen, which is then removed.

282,682-3. DYES. I. G. Farbenindustrie Akt.-Ges., Frankfurt-on-Main, Germany. International Convention dates, December 22 and 23, 1926.

282,682. Diazo compounds of mono-amino-carbazoles or derivatives are coupled with arylides of 2:3-oxynaphthoic acid to obtain azo dyes giving violet shades.

282,683. The diazo compounds from 4-nitraniline-2-sulphonic acid or its substitution products, 5-nitro-2-aminobenzyl-*w*-sulphonic acid, or a sulphonic acid of 4-nitro-1-aminonaphthalene are coupled with 2-(4-hydroxy-phenyl) aminonaphthalene or its substitution products, to obtain monoazo dyes giving blue to black shades on wool and acetate silk.

282,704. TREATING PHOSPHATES. F. G. Liljenroth, 14, Eriksbergsgatan, Stockholm. International Convention date, December 31, 1926.

An aqueous suspension of calcium phosphate is treated with silicon tetrafluoride, yielding phosphoric acid and calcium fluoride. The acid is filtered off, and clay, iron oxide, and silica added to the residue and the mixture burnt to yield a cement clinker. Silicon tetrafluoride is expelled, and may be used to treat a further quantity of calcium phosphate. Alternatively, raw phosphate is treated with sulphuric acid, and the calcium sulphate mixed with sand, clay, and bauxite, and calcined with coke to obtain sulphur dioxide from which sulphuric acid is manufactured.

282,706. ZINC OXIDE. Soc. Générale Métallurgique de Hoboken, Hoboken-lez-Anvers, Belgium. International Convention date, December 30, 1926.

A mixture of zinc sulphate and a sulphide such as zinc blende, iron pyrites, or iron and copper pyrites is roasted in a sintering apparatus to obtain a form of zinc oxide suitable for reduction in a zinc oven.

282,738. OIL REFINING. Axtell Research Laboratories, Inc., 704, Higgins Buildings, Los Angeles, Cal., U.S.A. (Assignees of F. C. Axtell, 1957, Fletcher Street, South Pasadena, Cal., U.S.A.) International Convention date, December 27, 1926.

Gasoline, kerosine, lubricating oils, or cracked distillates are treated with a reagent comprising fuming sulphuric acid treated with excess of aromatic hydrocarbon such as benzene and its homologues. The acid sludge contains most of the sulphur from the oils. The oil is separated, shaken with strong alkali, and redistilled, any remaining sulphur being left in the still.

282,755. AMMONIUM SULPHATE. Soc. Anon. de Matériel de Construction, 57, Rue Pigalle, Paris. International Convention date, December 29, 1926.

Calcium sulphate is decomposed by ammonium carbonate in the presence of clay, kaolin, bauxite, or other substances containing silica, alumina, and iron oxide. The ammonium sulphate solution is separated, and the pasty residue is suitable for making Portland cement. The latter process yields carbon dioxide, which may be used again in the process, together with ammonia gas.

282,772. ALUMINIUM AND OTHER NITRATES. M. Buchner, 1, Schellingstrasse, Kleefeld, Hanover, Germany. International Convention date, December 24, 1926.

Clay of bauxite, and ores of zinc or cerium, are treated with nitric acid in acid-proof vessels of an alloy of iron,

nickel, and chromium or tungsten, starting at 80° to 100° C. and increasing to 150° to 160° C., with increase of pressure. A neutral or basic liquor is obtained by using an excess of aluminiferous material, whereby precipitation of any iron is facilitated.

282,778. ISOMERISING INDIARUBBER. B. F. Goodrich Co., 1780, Broadway, New York. (Assignees of H. L. Fisher, 275, Leonia Avenue, Leonia, New York.) International Convention date, December 28, 1926.

Rubber is heated with phenol, cresol, catechol, resorcinol, naphthols or *p*-chlorphenol and with one of the following: chlorinated rubber, rubber hydrochloride, rubber sulphur chloride, chlorinated rubber hydrochloride, pinene hydrochloride, diphenylamine hydrochloride, trichloraniline hydrochloride, *m*-nitraniline hydrochloride, mercuric chloride, stannic chloride, naphthalene tetrachloride triphenyl chloromethane, zinc bromide, rubber dibromide, diphenylamine hydrobromide, calcium sulphate, aluminium sulphate, mercuric sulphate, diphenylamine sulphate, diphenylamine trichloracetate. The products are hard thermoplastic masses, soluble in organic solvents.

282,782-3. DYES. Soc. of Chemical Industry in Basle, Switzerland. International Convention date, December 24, 1926.

282,782. An unsulphonated *o*-nitro-diazo compound is coupled with 3-methyl-5-pyrazolone to obtain azo dyes for cellulose esters and ethers.

282,783. Soluble chromium compounds of azo dyes are obtained by coupling *o*-oxydiazo compounds with 3-methyl-5-pyrazolone, and treating with chromium compounds. Orange to red shades are obtained on wool or silk in an acid bath. Examples are given.

LATEST NOTIFICATIONS.

- 285,451. Process for the preparation of aromatic oxaldehydes. Riedel Akt.-Ges., J. D. February 17, 1927.
- 285,404. Process for the manufacture of dihydromorphine. Boehringer, A. February 15, 1927.
- 285,426. Manufacture of maleic acid and maleic anhydride. Boehringer, A. February 16, 1927.
- 285,486. Manufacture of dyestuffs of the phenonaphthosafranin series. Geigy Akt.-Ges., J. R. February 19, 1927.
- 285,488. Process for the manufacture of aniline-2:5-disulphonic acid. I. G. Farbenindustrie Akt.-Ges. February 18, 1927.
- 285,442. Process for the production of fast blue dyeings on the fibre. I. G. Farbenindustrie Akt.-Ges. February 16, 1927.
- 285,812. Process for the manufacture of azo-dyestuffs. I. G. Farbenindustrie Akt.-Ges. February 21, 1927.
- 285,502. Manufacture and production of nitrogenous dyestuffs. I. G. Farbenindustrie Akt.-Ges. February 18, 1927.
- 285,504. Manufacture of dyestuffs. I. G. Farbenindustrie Akt.-Ges. February 18, 1927.
- 285,821. Electrolytic production of metals and apparatus therefor. I. G. Farbenindustrie Akt.-Ges. February 21, 1927.
- 285,823. Manufacture of moth-proofing media and the protection of wool, skin, material, textiles, and the like against insects injurious to the same. I. G. Farbenindustrie Akt.-Ges. February 21, 1927.

Specifications Accepted with Date of Application

- 256,965 and 257,910. Liquid hydrocarbons and other products. Manufacture of—by the destructive hydrogenation of coal-tars, and the like. I. G. Farbenindustrie Akt.-Ges. August 14 and September 2, 1925.
- 261,385. Sulphonation of fatty acids and their esters. H. T. Böhm Akt.-Ges. November 11, 1925.
- 269,477. Activating carbon or carbonaceous substances with simultaneous production of combustible gases, and apparatus for carrying out the said process. Soc. de Recherches et d'Exploitations Pétrolifères. April 15, 1926.
- 269,547. Unsaturated gaseous hydrocarbons and mixtures of carbon monoxide and hydrogen. Manufacture and production of. I. G. Farbenindustrie Akt.-Ges. April 15, 1926.
- 269,950. Dihydroxy-acetone, Process for making. I. G. Farbenindustrie Akt.-Ges. April 26, 1926.
- 274,894. Carboxylic acids of acenaphthene, Manufacture of. I. G. Farbenindustrie Akt.-Ges. July 24, 1926.
- 275,618. Agglomerating or briquetting tin ores, Process of. Metallbank und Metallurgische Ges. August 9, 1926.
- 278,324. Acetaldehyde from gaseous mixtures containing acetylene, Manufacture and production of. I. G. Farbenindustrie Akt. Ges. September 28, 1926.

282,814. Liquid and other hydrocarbons and derivatives thereof, Manufacture and production of—by the destructive hydrogenation of tars, mineral oils, resins, asphalts, and like initial materials. I. G. Farbenindustrie Akt.-Ges. August 14, 1925. Addition to 256,964.

285,156. Vanillin and *i*-vanillin, Process for the preparation of. F. Boedecker. November 12, 1926.

285,159. Emulsification apparatus. G. C. Hurrell. November 13, 1926.

285,199. Lighter hydrocarbons, Process for producing. E. S. Andrews. (Bernard Ormont Associates, Inc.). December 11, 1926.

285,258. Colloidal dispersion of material in fluids, Apparatus for. J. Bourdais. March 1, 1927.

285,260. Zinc carbonates, Method of precipitating. N. A. Laury. March 7, 1927.

263,200. Vat dyestuffs of the benzanthrone series, Manufacture and production of. I. G. Farbenindustrie Akt.-Ges. December 18, 1925. Addition to 242,620.

Applications for Patents

- Benckiser, J. A. [Firm of], and T. Separating alkaline earth phosphates. 5,471. February 21.
- Bentley, G. A., and Clarke, T. Bleaching-preparations. 5,653. February 23.
- British Celanese, Ltd. Production of oxygenated organic compounds. 5,585. February 22.
- British Celanese, Ltd. Treatment of textile materials. 5,585. February 22.
- Electro Bleach and By-Products, Ltd., Hollins, J., and Jepson, D. Electro-deposition of metals. 5,976, 5,977, 5,978. February 25.
- Hands, H. J. Manufacture of cellulose acetate. 5,679. February 23.
- I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Hydrogenation of coal, etc. 5,313. February 20.
- I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of finely-divided sulphur. 5,314. February 20.
- I. G. Farbenindustrie Akt.-Ges., and Imray, O. Y. Manufacture of azo-dyestuffs. 5,489. February 21.
- I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Separation of oils from mixtures. 5,598. February 22.
- I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of dyestuffs. 5,827, 5,828. February 24.
- I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Manufacture of organic compounds. 5,829. February 24.
- I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Process of fermentation. 5,952. February 25.
- I. G. Farbenindustrie Akt.-Ges., and Johnson, J. Y. Production of hydrocarbons. 5,953. February 25.
- I. G. Farbenindustrie Akt.-Ges. Apparatus for electrolytic production of metals. 5,511. February 21. (Germany, February 21, 1927.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of moth-proofing media. 5,512. February 21. (Germany, February 21, 1927.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of esters of cellulose. 5,616. February 22. (Germany, February 23, 1927.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of 4-nitro-2-amino-1-benzoic acids, etc. 5,746. February 23. (Germany, February 24, 1927.)
- I. G. Farbenindustrie Akt.-Ges. Manufacture of azo-dyestuffs. 5,747. February 23. (Germany, March 21, 1927.)
- I. G. Farbenindustrie Akt.-Ges. Machinery for softening or breaking fibrous materials. 5,855. February 24. (Germany, March 4, 1927.)
- I. G. Farbenindustrie Akt.-Ges. Production of hydrocarbons. 5,951. February 25. (September 9, 1926.)
- International Sugar and Alcohol Co., Ltd. (Soc. Industrielle de la Cellulose.) Separation of carbohydrates and acids. 5,895. February 24.
- Kali-Industrie Akt.-Ges., Kristensson, A., and Thorsell, T. Production of potassium nitrate. 5,482. February 21. (Germany, March 16, 1927.)
- Lantz, R. Manufacture of azine dyestuffs. 5,603. February 22. (France, February 22, 1927.)
- Melamid, M. Liquefying carbon. 5,850. February 24. (Germany, January 24, 1927.)
- Ormandy, W. R. Manufacture of nitric acid. 5,494. February 21.
- Oxley, H. F. Production of oxygenated organic compounds. 5,584. February 22.
- Reimann, A. Separating alkaline earth phosphates. 5,471. February 21.
- Soc. Anon. des Matières Colorantes et Produits Chimiques de Saint Denis, and Wahl, A. Manufacture of azine dyestuffs. 5,603. February 22. (France, February 22, 1927.)

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.
 ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.
 ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity strength, and locality.
 ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.
 ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.
 AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.
 BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.
 BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.
 BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)
 CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.
 COPPER SULPHATE.—£25 to £25 10s. per ton.
 METHYLATED SPIRIT 61 O.P.—Industrial, 1s. 11d. to 2s. 4d. per gall.; pyridinised industrial, 2s. 1d. to 2s. 6d. per gall.; mineralised, 3s. to 3s. 4d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity as from March 1, 1928.
 NICKEL SULPHATE.—£38 per ton d/d.
 NICKEL AMMONIA SULPHATE.—£38 per ton d/d.
 POTASH CAUSTIC.—£30 to £33 per ton.
 POTASSIUM BICHROMATE.—4½d. per lb.
 POTASSIUM CHLORATE.—3½d. per lb., ex wharf, London, in cwt. kegs.
 SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.
 SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.
 SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.
 SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.
 SODIUM ACETATE 97/98%.—£21 per ton.
 SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.
 SODIUM BICHROMATE.—3½d. per lb.
 SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.
 SODIUM CHLORATE.—2½d. per lb.
 SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.
 SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.
 SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.
 SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.
 SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.
 SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—6½d. to 7½d. per lb. Crude 60's, 2s. 3d. to 2s. 4d. per gall. prompt.
 ACID CRESYLIC 99/100.—2s. 11d. to 3s. per gall. 97/99.—2s. to 2s. 10d. per gall. Pale, 95%, 2s. 5d. to 2s. 6d. per gall. Dark, 95%, 2s. 2d. to 2s. 3d.
 ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.
 ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7½d. to 8d. per gall.
 BENZOLE.—Prices at works; Crude, 8½d. to 9d. per gall.; Standard Motor, 1s. 1d. to 1s. 2d. per gall.; 90%, 1s. 2d. to 1s. 3d. per gall.; Pure, 1s. 5d. to 1s. 6d. per gall.
 TOLUOLE.—90%, 1s. 4d. to 1s. 8d. per gall. Firm. Pure, 1s. 6d. to 1s. 10d. per gall.
 XYLOL.—1s. 3d. to 2s. per gall. Pure, 2s. 4d. per gall.
 CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall.; middle oil, 8d. to 9d. per gall. Heavy, 8½d. to 9d. per gall. Standard specification, 7½d. to 7½d. ex works. Salty, 7½d. per gall.
 NAPHTHA.—Crude, 7½d. to 8d. per gall. Solvent 90/160, 10d. to 10½d. per gall. Solvent 95/160, 1s. 3d. to 1s. 4d. per gall. Solvent 90/190, 9½d. to 1s. 2d. per gall.
 NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed or hot pressed, £8 per ton.
 NAPHTHALENE.—Crystals, £13 to £13 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.
 PITCH.—Medium soft, 55s. to 75s. per ton, f.o.b., according to district. Nominal.
 PYRIDINE.—90/140, 5s. 6d. to 6s. per gall. 90/180, 3s. to 5s. per gall. Heavy, 2s. 6d. to 3s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:
 ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.
 ACID ANTHRANILIC.—6s. per lb. 100%.
 ACID BENZOIC.—1s. 8½d. per lb.
 ACID GAMMA.—4s. 6d. per lb.
 ACID H.—3s. per lb.
 ACID NAPHTHIONIC.—1s. 6d. per lb.
 ACID NEVILLE AND WINTER.—4s. 9d. per lb.
 ACID SULPHANILIC.—8½d. per lb.
 ANILINE OIL.—8d. per lb. naked at works.
 ANILINE SALTS.—8d. per lb. naked at works.
 BENZALDEHYDE.—2s. 3d. per lb.
 BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.
 BENZOIC ACID.—1s. 8½d. per lb.
 o-CRESOL 29/31° C.—5½d. per lb.
 m-CRESOL 98/100%.—2s. 3d. to 2s. 5d. per lb.
 p-CRESOL 32/34° C.—2s. 3d. to 2s. 5d. per lb.
 DICHLORANILINE.—2s. per lb.
 DIMETHYLANILINE.—1s. 11d. per lb.
 DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.
 DINITROCHLOROBENZENE.—£84 per ton d/d.
 DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.
 DIPHENYLAMINE.—2s. 10d. per lb. d/d.
 a-NAPHTHOL.—2s. per lb. d/d.
 B-NAPHTHOL.—10d. per lb. d/d.
 a-NAPHTHYLAMINE.—1s. 3d. per lb.
 B-NAPHTHYLAMINE.—3s. per lb.
 o-NITRANILINE.—5s. 9d. per lb.
 m-NITRANILINE.—3s. per lb. d/d.
 p-NITRANILINE.—1s. 8d. per lb.
 NITROBENZENE.—6d. per lb. naked at works.
 NITRONAPHTHALENE.—1s. 3d. per lb.
 R. SALT.—2s. 2d. per lb.
 SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.
 o-TOLUIDINE.—8d. per lb.
 p-TOLUIDINE.—2s. 1d. per lb. naked at works.
 m-XYLIDINE ACETATE.—2s. 6d. per lb. 100%.
 N. W. ACID.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.
 CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.
 IRON LIQUOR.—1s. 3d. per gall, 32° Tw. 1s. per gall. 24° Tw.
 RED LIQUOR.—9d. to 10d. per gall.
 WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.
 WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.
 WOOD TAR.—£4 to £5 per ton.
 BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.
 ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.
 BARYTES.—£3 10s. to £6 15s. per ton, according to quality.
 CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.
 CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.
 CARBON BLACK.—5½d. per lb., ex wharf.
 CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.
 CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.
 DIPHENYLGUANIDINE.—3s. 9d. per lb.
 INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5½d. to 6½d. per lb.
 LAMP BLACK.—£35 per ton, barrels free.
 LEAD HYPOSULPHITE.—9d. per lb.
 LITHOPHON, 30%.—£22 10s. per ton.
 MINERAL RUBBER "RUBRON."—£13 12s. 6d. per ton, f.o.r. London.
 SULPHUR.—£9 to £11 per ton, according to quality.
 SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.
 SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.
 THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.
 THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.
 VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.
 ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers
 ACID, ACETYL SALICYLIC.—2s. 5d. to 2s. 7d. per lb.
 ACID, BENZOIC, B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. 3d. per oz., according to quantity.

ACID, BORIC B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.

ACID, CAMPHORIC.—19s. to 21s. per lb.

ACID, CITRIC.—1s. 8½d. to 1s. 11d. per lb., less 5%.

ACID, GALLIC.—2s. 8d. per lb. for pure crystal, in cwt. lots.

ACID, PYROGALLIC, CRYSTALS.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.

ACID, SALICYLIC, B.P. PULV.—1s. 2d. to 1s. 4d. per lb.; Technical.—11½d. to 11¾d. per lb.

ACID, TANNIC B.P.—2s. 8d. to 2s. 10d. per lb.

ACID, TARTARIC.—1s. 4½d. per lb., less 5%.

ACETANILIDE.—1s. 5d. to 1s. 8d. per lb. for quantities.

AMIDOL.—7s. 6d. to 9s. per lb., d/d.

AMIDOPYRIN.—8s. to 8s. 3d. per lb.

AMMONIUM BENZOATE.—3s. to 3s. 3d. per lb., according to quantity. 18s. per lb. ex Gum.

AMMONIUM CARBONATE B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimed, 1s. per lb.

ATROPINE SULPHATE.—9s. per oz.

BARBITONE.—5s. 9d. to 6s. per lb.

BENZONAPHTHOL.—3s. 3d. per lb. spot.

BISMUTH CARBONATE.—11s. 4d. to 11s. 7d. per lb.

BISMUTH CITRATE.—10s. 4d. to 10s. 7d. per lb.

BISMUTH SALICYLATE.—10s. 7d. to 10s. 10d. per lb.

BISMUTH SUBNITRATE.—9s. 7d. to 9s. 10d. per lb.

BISMUTH NITRATE.—6s. 7d. to 6s. 10d. per lb.

BISMUTH OXIDE.—14s. 7d. to 14s. 10d. per lb.

BISMUTH SUBCHLORIDE.—14s. 4d. to 14s. 7d. per lb.

BISMUTH SUBGALLATE.—8s. 7d. to 8s. 10d. per lb. Extra and reduced prices for smaller and larger quantities of all bismuth salts respectively.

BISMUTH ET AMMON LIQUOR.—Cit. B.P. in W. Qts. 1s. 1½d. per lb.; 12 W. Qts. 1s. 0½d. per lb.; 36 W. Qts., 1s. per lb.

BORAX B.P.—Crystal, 24s. to 27s. per cwt.; powder, 25s. to 28s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.

BROMIDES.—Ammonium, 2s. 1d. to 2s. 3d. per lb.; potassium, 1s. 9½d. to 1s. 11½d. per lb.; sodium, 2s. to 2s. 2d. per lb.; granulated ½d. per lb. less; all spot. Large quantities at lower rates.

CALCIUM LACTATE.—1s. 2d. to 1s. 3d. per lb.

CAMPHOR.—Refined flowers, 2s. 11d. to 3s. per lb., according to quantity; also special contract prices.

CHLORAL HYDRATE.—3s. 2d. to 3s. 4d. per lb.

CHLOROFORM.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

CREOSOTE CARBONATE.—6s. per lb.

ETHERS.—S.G. 730—1s. 1d. to 1s. 2d. per lb., according to quantity; other gravities at proportionate prices.

FORMALDEHYDE.—£39 per ton, in barrels ex wharf.

GUAIACOL CARBONATE.—4s. 9d. to 5s. per lb.

HEXAMINE.—2s. 3d. to 2s. 6d. per lb.

HOMATROPINE HYDROBROMIDE.—30s. per oz.

HYDRASTINE HYDROCHLORIDE.—English make offered at 120s. per oz.

HYDROGEN PEROXIDE (12 VOLS.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gall. B.P., 10 vols., 2s. to 2s. 3d. per gall.; 20 vols., 4s. per gall.

HYDROQUINONE.—3s. 9d. to 4s. per lb., in cwt. lots.

HYPOPHOSPHITES.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

IRON AMMONIUM CITRATE.—B.P., 2s. 3d. to 2s. 6d. per lb. Green, 2s. 6d. to 2s. 11d. per lb.; U.S.P., 2s. 4d. to 2s. 7d. per lb.

IRON PERCHLORIDE.—18s. to 20s. per cwt., according to quantity.

MAGNESIUM CARBONATE.—Light commercial, £31 per ton net.

MAGNESIUM OXIDE.—Light commercial, £62 10s. per ton, less 2½%; Heavy commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.

MENTHOL.—A.B.R. recrystallised B.P., 16s. 6d. per lb. net for January delivery; Synthetic, 9s. to 10s. per lb.; Synthetic detached crystals, 9s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 9s. 6d. per lb.

MERCURIALS B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10s. to 5s. 11d. per lb. Special prices for larger quantities.

METHYL SALICYLATE.—1s. 5d. to 1s. 9d. per lb.

METHYL SULPHONAL.—9s. to 9s. 3d. per lb.

METOL.—9s. to 11s. 6d. per lb. British make.

PARAFORMALDEHYDE.—1s. 9d. per lb. for 100% powder.

PARALDEHYDE.—1s. 1d. to 1s. 4d. per lb.

PHENACETIN.—2s. 6d. to 2s. 9d. per lb.

PHENAZONE.—4s. to 4s. 3d. per lb.

PHENOLPHTHALEIN.—6s. to 6s. 3d. per lb.

POTASSIUM BITARTRATE 99/100% (Cream of Tartar).—102s. per cwt., less 2½ per cent.

POTASSIUM CITRATE.—B.P.C., 1911, 1s. 8d. to 1s. 11d. per lb.; U.S.P., 2s. 1d. to 2s. 4d. per lb.

POTASSIUM FERRICYANIDE.—1s. 9d. per lb., in cwt. lots.

POTASSIUM IODIDE.—16s. 8d. to 17s. 2d. per lb., according to quantity.

POTASSIUM METABISULPHITE.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

POTASSIUM PERMANGANATE.—B.P. crystals, 5½d. per lb., spot.

QUININE SULPHATE.—1s. 8d. to 1s. 9d. per oz., bulk in 100 oz. tins.

RESORCIN.—2s. 10d. to 3s. per lb., spot.

SACCHARIN.—55s. per lb.; in quantity lower.

SALOL.—2s. 4d. per lb.

SODIUM BENZOATE, B.P.—1s. 8d. to 1s. 11d. per lb.

SODIUM CITRATE, B.P.C., 1911.—1s. 10d. to 2s. 1d. per lb., B.P.C., 1923—2s. 2d. to 2s. 3d. per lb. for 1-cwt. lots. U.S.P., 2s. 1d. to 2s. 3d. per lb., according to quantity.

SODIUM FERROCYANIDE.—4d. per lb., carriage paid.

SODIUM HYPOSULPHITE, PHOTOGRAPHIC.—£15 per ton, d/d consignee's station in 1-cwt. kegs.

SODIUM NITROPRUSSIDE.—16s. per lb.

SODIUM POTASSIUM TARTRATE (ROCHELLE SALT).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.

SODIUM SALICYLATE.—Powder, 1s. 7d. to 1s. 9d. per lb. Crystal, 1s. 8d. to 1s. 10d. per lb.

SODIUM SULPHIDE, PURE RECRYSTALLISED.—10d. to 1s. 1d. per lb.

SODIUM SULPHITE, ANHYDROUS.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.

SULPHONAL.—6s. 9d. to 7s. per lb.

TARTAR EMETIC, B.P.—Crystal or powder, 2s. to 2s. 3d. per lb.

THYMOL.—Puriss., 10s. to 10s. 3d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

ACETOPHENONE.—7s. per lb.

AUBEPINE (EX ANETHOL).—11s. per lb.

AMYL ACETATE.—2s. per lb.

AMYL BUTYRATE.—4s. 9d. per lb.

AMYL SALICYLATE.—2s. 9d. per lb.

ANETHOL (M.P. 21/22° C.).—5s. 6d. per lb.

BENZYL ACETATE FROM CHLORINE-FREE BENZYL ALCOHOL.—23s. per lb.

BENZYL ALCOHOL FREE FROM CHLORINE.—2s. per lb.

BENZALDEHYDE FREE FROM CHLORINE.—2s. 6d. per lb.

BENZYL BENZOATE.—3s. per lb.

CINNAMIC ALDEHYDE NATURAL.—15s. 6d. per lb.

COUMARIN.—10s. per lb.

CITRONELLOL.—13s. 6d. per lb.

CITRAL.—8s. 3d. per lb.

ETHYL CINNAMATE.—6s. per lb.

ETHYL PHTHALATE.—3s. per lb.

EUGENOL.—8s. 3d. per lb.

GERANIOL (PALMAROSA).—18s. 6d. per lb.

GERANIOL.—6s. to 10s. per lb.

HELIOTROPINE.—4s. 6d. per lb.

ISO EUGENOL.—13s. per lb.

LINALOL.—Ex Bois de Rose, 15s. per lb. Ex Shui Oil, 10s. 6d. per lb.

LINALYL ACETATE.—Ex Bois de Rose, 8s. 6d. per lb. Ex Shui Oil, 14s. 6d. per lb.

METHYL ANTHRANILATE.—8s. 6d. per lb.

METHYL BENZOATE.—4s. per lb.

MUSK KETONE.—35s. per lb.

MUSK XYLOL.—7s. per lb.

NEROLIN.—4s. 6d. per lb.

PHENYL ETHYL ACETATE.—11s. per lb.

PHENYL ETHYL ALCOHOL.—10s. 6d. per lb.

RHODINOL.—32s. 6d. per lb.

SAFROL.—1s. 6d. per lb.

TERPINEOL.—1s. 8d. per lb.

VANILLIN.—16s. 6d. per lb.

Essential Oils

ALMOND OIL.—Foreign S.P.A., 10s. 6d. per lb.

ANISE OIL.—2s. 9d. per lb.

BERGAMOT OIL.—25s. per lb.

BOURBON GERANIUM OIL.—14s. 6d. per lb.

CAMPHOR OIL.—9d. per lb.

CANANGA OIL, JAVA.—13s. 3d. per lb.

CINNAMON OIL LEAF.—6s. 9d. per lb.

CASSIA OIL, 80/85%.—7s. 3d. per lb.

CITRONELLA OIL.—Java, 2s. per lb., c.i.f. U.K. port. Ceylon, pure, 1s. 9d. per lb.

CLOVE OIL.—5s. 6d. per lb.

EUCALYPTUS OIL, AUSTRALIAN.—2s. 1d. per lb.

LAVENDER OIL.—Mont Blanc, 38/40%, Esters, 15s. 9d. per lb.

LEMON OIL.—9s. per lb.

LEMONGRASS OIL.—3s. 9d. per lb.

ORANGE OIL, SWEET.—12s. 9d. per lb.

OTTO OF ROSE OIL.—Anatolian, 35s. per oz. Bulgarian, 65s. per oz.

PALMA ROSA OIL.—12s. 6d. per lb.

PEPPERMINT OIL.—Wayne County, 15s. 6d. per lb.; Japanese, 7s. 3d. per lb.

PETITGRAIN.—7s. 6d. per lb. Sandalwood, Mysore, 26s. 6d. per lb., 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, March 1, 1928.

THE market has been without special feature since our last report, the demand being fairly satisfactory and prices steady. Export trade is maintaining an expanding volume of business.

General Chemicals

ACETONE continues steady and in fair demand at £64 to £66 per ton.
ACID ACETIC is in steady everyday request at £37 to £38 per ton, which are unchanged and firm prices.
ACID CITRIC is, if anything, firmer at 1s. 9½d. to 1s. 10½d. per lb., but demand is not of great volume.
ACID FORMIC.—In fair demand at about £47 per ton for 85%.
ACID LACTIC is very firm and in moderate request at £43 per ton for best 50% by weight, pale grades.
ACID OXALIC.—Price is maintained at about £30 10s., with a good demand from home trade.
ACID TARTARIC is again higher at 1s. 4½d. to 1s. 5d. per lb., but demand is not, so far, very large.
ALUMINA SULPHATE displays more activity and the price holds firm at £5 15s. for 17/18%, iron-free quality.
AMMONIUM CHLORIDE is only in quiet request and price stands steady at about £18 10s. per ton for 98/100%, fine white quality.
ARSENIC.—No improvement in demand can be reported, and as a consequence, price is slack at about £18 per ton.
BARIUM CHLORIDE is steady at about £8, with demand increasing.
COPPER SULPHATE maintains its very firm position at about £25 to £26 per ton, with producers sold out for near delivery.
CREAM OF TARTAR is extremely firm and in satisfactory request. Price about £98 for 99% B.P. quality, with a tendency for the price to go to a higher figure.
EPSOM SALTS.—Unchanged in price with a fair business passing.
FORMALDEHYDE is in much better request and price continues steady at about £40 10s. to £41.
LEAD ACETATE is in satisfactory request, with prices unchanged at £42 for white, and brown £1 per ton less.
LIME ACETATE.—Demand is active and the grey quality is in short supply for near delivery, with price holding firm at about £17 10s. to £18.
METHYL ACETONE continues in fair request at about £55 for 40/45% material.
POTASSIUM CAUSTIC AND CARBONATE.—Unchanged.
POTASSIUM CHLORATE.—In fair demand on home trade account and increased demand for export. Price firm at £29 to £30.
POTASSIUM PERMANGANATE.—In quiet request at about 5d. to 5½d. per lb. for B.P. quality.

POTASSIUM PRUSSIAN.—Unchanged at £59 to £63 per ton, according to quantity, with demand fair.
SODIUM ACETATE continues in short supply for near delivery, with price held firm at £21 10s.
SODIUM BICHROMATE.—In fair request at British makers' figures, with foreign competition rather less noticeable.
SODIUM CHLORATE is firm at about £28 to £30 for best white crystal quality, with supplies on the short side.
SODIUM HYPOSULPHITE.—Rather more inquiry is being received for photographic and commercial qualities, with prices firm and unchanged.
SODIUM NITRITE has been in fair demand and price rules firm at about £20 10s.
SODIUM PHOSPHATE continues fairly active at about £12 for first-class quality.
SODIUM PRUSSIAN.—Firm at 4½d. with good inquiry.
SODIUM SULPHATE.—Unchanged at British makers' prices, with fair demand.
TARTAR EMETIC.—Higher at about 11½d., with prospects of higher prices and demand active.
ZINC SULPHATE.—Price about £12 for good iron-free material, with fair demand.

Coal Tar Products

The market for coal tar products remains quiet, but there is a distinct improvement in the demand for export.
90's BENZOL is unchanged, at about 1s. 3d. to 1s. 4d. per gallon, but there is very little of this quality obtainable, as makers are mostly engaged in the manufacture of the motor quality, which can be obtained at 1s. 1d. to 1s. 2d. per gallon.
PURE BENZOL is worth about 1s. 5½d. to 1s. 6½d. per gallon, on rails.
CREOSOTE OIL is not very active, and can be bought at 7½d. per gallon on rails in the North, and at 8d. per gallon in London.
CRESYLIC ACID.—There are larger quantities available, but with little demand. The pale quality 98/100% is quoted at 2s. 8d. per gallon, at works naked, and the dark quality 95/97% at 2s. 2d. per gallon.
SOLVENT NAPHTHA is very weak, and can be bought in the provinces at about 8d. per gallon.
HEAVY NAPHTHA is in poor demand, and can be bought at 9d. to 9½d. per gallon on rails.
NAPHTHALENES are unchanged, the 74/76 quality being quoted at about £7 per ton, while the 76/78 quality is quoted at £8 to £8 10s. per ton.
PITCH is in somewhat better demand and the recent drop in value seems to have come to an end. Prices to-day are more or less nominal at 60s. to 65s., f.o.b. U.K. port.

Latest Oil Prices

LONDON, February 29.—LINSEED OIL steady. Spot, ex mill, £28 5s.; February, £27 7s. 6d.; March-April, £27 12s. 6d.; May-August, £28 12s. 6d.; September-December, £29 5s. RAPE OIL quiet. Crude extracted, £42; technical refined, £44, naked, ex wharf. COTTON OIL steady. Refined common edible, £40; Egyptian crude, £35 10s.; deodorized, £42 per ton. TURPENTINE steady at 3d. decline. American, spot, 40s. 9d.; March-April, 41s.; May-June, 41s. 3d.; and July-December, 41s. 9d. per cwt.
HULL, February 29.—LINSEED OIL, spot and February, £28 2s. 6d.; March-April, £28 7s. 6d.; May-August, £28 15s.; September-December, £29 5s. COTTON OIL.—Bombay crude, £32; Egyptian crude (new), £34 10s.; edible refined, £38; technical, £35 10s.; deodorized, £40. PALM KERNEL OIL crushed, 5½ per cent., £37 10s. GROUNDNUT OIL crushed-extracted, £42; deodorized, £46. SOYA OIL extracted and crushed, £32 10s.; deodorized, £36. RAPE OIL crude-extracted, £40 10s.; refined, £42 10s. per ton, net cash terms, ex mill. TURPENTINE, CASTOR OIL, and COD OIL unchanged.

Nitrogen Products

Export.—The market continues firm, with the price tending upwards. It is understood that prices f.o.b. U.K. port for near delivery have now reached £10 per ton. There is still very little inquiry for forward positions.

Home.—Merchants in all parts of the country have now commenced to order their requirements and the volume of trade has been, on account of the exceptionally fine weather, unusually heavy. The price continues unchanged, and small lots which were being offered in isolated places at a lower price seem to have disappeared.

Nitrate of Soda.—Nitrate continues quiet. Apparently most of the big merchants are sufficiently stocked for the present consuming season. The price remains about 16s. 6d. per metric quintal f.a.s. Chile.

Methylated Spirit Prices

THE Methylating Co., Ltd., state that their prices for methylated spirits and finish from March 1 and until further notice are as follows:

IN ONE DELIVERY.	INDUSTRIAL PYRIDINISED MINERALISED METHYLATED METHYLATED METHYLATED		
	61 o.p. s. d.	61 o.p. s. d.	61 o.p. s. d.
500 galls. and over ..	1 11	2 1	—
100 galls. and under 500 ..	2 0	2 2	3 0
30 galls. and under 100 ..	2 2	2 4	3 2
10 galls. and under 30 ..	2 4	2 6	3 4
	64 o.p. s. d.	64 o.p. s. d.	64 o.p. s. d.
	s. d.	s. d.	s. d.
500 galls. and over ..	2 0	2 2	—
100 galls. and under 500 ..	2 1	2 3	3 1
30 galls. and under 100 ..	2 3	2 5	3 3
10 galls. and under 30 ..	2 5	2 7	3 5

Methylated resin finish, 2d. per gallon extra, and methylated shellac finish, 8d. per gallon extra over prices quoted for pyridinised industrial methylated spirit.

South Wales By-Products

BUSINESS in South Wales by-products continues to be on a moderate scale and very little business, apart from small parcels for prompt delivery, is reported. Pitch, which has a quiet but steady demand, is now firm round about 65s. to 67s. 6d. per ton delivered, and, in view of road demands materialising, is unlikely to go below this figure. Refined tars are unchanged, with the demand slightly better, while crude tar continues to change hands round about 60s. per ton, maker's works. Patent fuel and coke exports remain moderate but, on the whole, satisfactory. Patent fuel for export 22s. 6d. to 23s. 6d.; coke (best foundry) 32s. 6d. to 34s., other sorts from 25s. to 32s. 6d. per ton.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, March 1, 1928

DURING the past week the heavy chemical market, while not being quite so active as for the few preceding weeks, has been steady with a good proportion of inquiry received leading to business. There is one notable change in price, viz.:—Industrial methylated spirit, which has been reduced by the combine, 3d. per gallon to meet outside competition.

Industrial Chemicals

ACETONE, B.G.S.—£63 to £66 per ton, ex store, according to quantity.

ACID, ACETIC, 98/100%.—Glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports, 80%, pure, £37 10s. per ton, ex wharf, 80% technical, £37 10s. per ton, ex wharf.

ACID, BORIC.—Crystals, granulated or small flakes, £30 per ton, powdered, £32 per ton, packed in bags, carriage paid U.K. stations.

ACID, CARBOLIC, ICE CRYSTALS.—Quoted 6½d. per lb., f.o.b. U.K. ports.

ACID, HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. per carboy. Dearsenicated quality, 5s. 6d. per carboy, ex works, full wagon loads.

ACID, NITRIC.—80% quality, £24 10s. per ton, ex station, full truck loads.

ACID, OXALIC, 98/100%.—On offer from the Continent at 3½d. per lb., ex wharf. Spot material quoted 3½d. per lb., ex store. In better demand.

ACID, SULPHURIC.—£2 15s. per ton, ex works, for 144° quality; £5 15s. per ton for 168° quality. Dearsenicated quality 20s. per ton extra.

ACID, TARTARIC, B.P. CRYSTALS.—Now quoted 1s. 4½d. per lb., less 5%, ex wharf. Demand rather easier.

ALUMINA, SULPHATE, 17/18%, IRON FREE.—Spot material on offer at £5 15s. per ton, ex store. Quoted £5 5s. per ton, c.i.f. U.K. ports, prompt shipment.

ALUM, LUMP POTASH.—Continental material on offer at £8 7s. 6d. per ton, c.i.f. U.K. ports. Crystal meal about the same figure. Lump quality on spot quoted £9 2s. 6d. per ton, ex store.

AMMONIA, ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5-cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA, LIQUID, 88%.—Unchanged at about 2d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture, unchanged at £23 to £24 per ton, ex station. Continental on offer at £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals, quoted £17 10s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Rather cheaper at about £19 7s. 6d. per ton, ex wharf, prompt despatch from mines. Spot material available at £20 10s. per ton, ex store.

BARIUM CARBONATE, 98/100%.—English material on offer at £7 5s. per ton, ex store. Continental quoted £7 per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £6 17s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—British manufacturers' contract price to consumers, £6 12s. 6d. per ton, delivered minimum 4-ton lots. Continental on offer at £6 10s. per ton, ex wharf.

BORAX.—English manufacturers' price unchanged as follows:—Granulated, £19 10s. per ton; crystals, £20 per ton; powdered, £21 per ton. Odd parcels on offer of granulated from America at about £16 per ton, ex wharf.

CALCIUM CHLORIDE.—British manufacturers' price, £4 15s. per ton to £5 5s. per ton, ex station, according to quantity and point of delivery. Continental material quoted £3 12s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton, f.o.r. works, or £4 12s. 6d. per ton, f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Offered from the Continent at £25 10s. per ton, c.i.f. U.K. ports. British material available at about the same figure, ex store.

FORMALDEHYDE, 40%.—Competitive prices are now offered from America. Quoted about £35 10s. per ton, c.i.f. U.K. ports. Spot material available at £39 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Quoted £30 10s. per ton, ex store.

LEAD, WHITE.—Spot material on offer at £31 per ton, ex store.

LEAD ACETATE.—White crystals quoted £39 15s. per ton, c.i.f. U.K. ports; brown, £38 10s. per ton, c.i.f. U.K. ports. Spot material on offer at £42 15s. per ton, ex store, spot delivery.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

METHYLATED SPIRIT.—Industrial quality, 64 o.p., reduced by 3d. per gallon. Now quoted 2s. per gallon, delivered.

POTASSIUM BICHROMATE.—4½d. per lb. delivered, minimum 4-ton lots. Under 4-ton lots ½d. per lb. extra.

POTASSIUM CARBONATE, 96/98%.—Rather scarce for immediate delivery. Quoted £25 10s. per ton, ex wharf. Spot material about £26 10s. per ton, ex store.

POTASSIUM CHLORATE, 99/100%.—Powdered material offered from the Continent at £25 10s. per ton, c.i.f. U.K. ports. Crystals, 30s. per ton more.

POTASSIUM NITRATE.—Refined granulated quality quoted £10 2s. 6d. per ton, c.i.f. U.K. ports. Spot material on offer at about £20 10s. per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 5½d. per lb., ex wharf.

POTASSIUM PRUSSIAN (YELLOW).—Unchanged at about 6½d. per lb., ex store, spot delivery. Offered from the Continent at 6½d. per lb.

SODA CAUSTIC.—Powdered, 98/99%, £17 17s. 6d. per ton; solid, 76/77%, £14 10s. per ton; 70/72%, £13 12s. 6d. per ton, minimum 4-ton lots, carriage paid on contract. Spot material, 10s. per ton extra.

SODIUM ACETATE.—In good demand and spot material scarce. Quoted £20 5s. per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less. No change in price for next year.

SODIUM BICHROMATE.—Quoted 3d. per lb., delivered buyers' works, minimum 4-ton lots. Under 4 and over 2-ton lots, 3½d. per lb.; under 2-ton lots, 3½d. per lb.

SODIUM CARBONATE (SODA CRYSTALS).—£3 to £5 5s. per ton, ex quay or station. Powdered or pea quality 27s. 6d. per ton extra.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £8 17s. 6d. per ton, ex station, minimum 4-ton lots. Pea crystals on offer at £14 15s. per ton, ex station, minimum 4-ton lots.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIAN (YELLOW).—In moderate demand and price unchanged at about 4½d. per lb., ex store. Offered for prompt shipment from the Continent at 4½d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Prices 50s. per ton, ex works for unground quality, 52s. 6d. per ton, delivered. Ground quality 2s. 6d. per ton extra.

SODIUM SULPHIDE.—Prices now as follows:—Solid, 60/62%, £9 per ton; broken, 60/62%, £10 per ton. Crystals, 30/32%, £9 2s. 6d. per ton, delivered buyers' work on contract, minimum 4-ton lots. Special prices for some consumers. Spot material, 5s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; floristella, £9 10s. per ton; ground American, £9 5s. per ton, ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports, 98/100% solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports. Powdered 20s. per ton extra.

ZINC SULPHATE.—Continental material quoted £11 15s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Methylated Ether Prices

May and Baker, Ltd., London, announce that as the result of a further reduction in the market for methylated spirit their prices of methylated ethers have been reduced as follows:—

Ether Meth.	In W. Qts.		Not less than 12 W. Qts.		In drums or carboys.
	W. Qts.	Not less than 12 W. Qts.	W. Qts.	Not less than 12 W. Qts.	
S.G. 750	1 1	1 0½	1 1	1 0½	1 — per lb.
735	1 1½	1 1	1 1	1 0½	..
730	1 1½	1 1	1 1	1 0½	..
725	1 3½	1 3	1 3	1 2½	..
725 Triply Rect. ...	1 8	1 7½	1 7½	1 7	..
720	1 4½	1 4	1 4	1 3½	..
717	1 10½	1 10	1 10	1 9½	..

Ether Purif 720 ex Meth.

Spirit (Aether P.B. 1914) 2/3 2/2½ 2/2 ..

Baker's Anaesthetic Ether, a specially purified ether for the production of general anaesthesia has also been considerably reduced in price.

Manchester Chemical Market

(FROM OUR OWN CORRESPONDENT).

Manchester, March 1, 1928.

THERE has been no falling away of inquiries on the Manchester market during the past week for deliveries of heavy chemicals against contract commitments, and altogether these may be said to be of a fair volume, having regard to the continued unsatisfactory position, so far as the consumption of chemicals in this area is concerned, of the cotton textile industry. In the open market, however, demand is of limited extent and, as before, largely to meet early needs, although values keep steady in most directions.

Heavy Chemicals

A quiet trade is passing in sulphide of sodium, but prices are about unaltered on the week, current values being at £7 10s. per ton for the commercial material and £9 10s. for the 60-65 per cent. concentrated solid. Bleaching powder is attracting a moderate amount of attention and prices remain at about £7 per ton. Caustic soda keeps firm at from £13 7s. 6d. to £15 7s. 6d. per ton, according to quality, and a fair movement of this material is reported. Chlorate of soda is rather inactive, current quotations being at about 2½d. per lb. There is a moderate inquiry about for prussiate of soda, offers of which this week have been at from 4½d. to 4½d. per lb., according to quantity. Phosphate of soda is slightly easier on the week at from £12 5s. to £12 10s. per ton, and business has been rather quiet. Bicarbonate of soda is steady and meets with a moderate demand at round £10 10s. per ton, with alkali in a somewhat similar position at £6 2s. 6d. per ton. Saltcake is on the slow side, but prices are about unchanged on the basis of £2 12s. 6d. per ton in contract lots. Bichromate of soda is about maintained at round 3½d. per lb., and a moderate movement has been reported during the past week. Hypo-sulphite of soda is slow and featureless, with offers of photographic material ranging from £16 5s. to £16 10s. per ton and of commercial at £9 5s. Nitrite of soda is obtainable here at round £19 per ton and a moderate inquiry for this has been met with.

Among the potash products, carbonate is quoted here at £25 to £25 10s. per ton, and the demand is on the quiet side at the moment. Caustic potash, however, continues firm, and a fair trade is reported, round £33 5s. per ton being quoted for prompt delivery in one to five-ton lots. Chlorate of potash has been in rather limited demand, but values show little change, about 3d. per lb. still being asked. Permanganate of potash is in rather slow request with B.P. material quoted at 5½d. per lb. and commercial quality at round 4½d. Bichromate of potash is about maintained at 4½d. per lb., and a fair amount of business is being put through. Yellow prussiate of potash is in moderate request, with current offers at from 6½d. to 6½d. per lb.

Arsenic keeps fairly steady at about £17 10s. per ton, on rails, for white powdered, Cornish makes, with inquiry on moderate lines. With regard to sulphate of copper this remains quite firm at £26 15s. per ton, f.o.b., and the demand on export account this week has been at about its recently improved level. Nitrate of lead is slow, with offers still at about £37 per ton. There is relatively little movement in the case of the acetates of lead, white being quoted at about £40 per ton and brown at £38 to £39. Acetate of lime is in moderate request and prices are about held at £16 5s. per ton for grey and £10 10s. for brown.

Acids and Tar Products

Oxalic acid is maintained at up to 3½d. per lb. for small lots, a fair business being reported. Acetic acid continues to move off in moderately good quantities, with values steady at from £66 to £67 per ton for glacial and £37 10s. for 80 per cent. commercial. Tartaric and citric acids continue to rise on Continental reports as to shortage of materials, citric now being quoted in some cases at up to 1s. 11d. per lb. and tartaric at 1s. 4½d. per lb.

Of the tar products, pitch remains rather quiet for export, and values are largely nominal at £3 per ton, f.o.b. Solvent naphtha is easy at 10½d. per gallon, and buying of this material continues on a small scale. Creosote oil is obtainable at from 7½d. to 7½d. per gallon, and a fair business is being put through. Carbolic acid crystals are quiet but about unchanged at 6½d. per lb., with crude steady and on the short side at up to 2s. 5d. per gallon.

Company News

JOHN OAKLEY AND SONS.—For the year ended December 31 last, the report shows that the net profits, including £3,385 brought forward, amount to £47,156. The board recommend a final dividend of 8½ per cent., less income tax, to the ordinary shareholders, making, with the interim dividend of 2½ per cent., a total of 11 per cent. for the year. The sum of £10,000 is placed to general reserve and £3,656 carried forward to next year.

CELANESE CORPORATION OF AMERICA.—In a circular to shareholders a further issue of capital is proposed, not exceeding \$11,481,800 par value (being 114,818 shares of par value of \$100), of 7 per cent. cumulative series prior preferred stock, which will be prior in all respects to the existing 7 per cent. cumulative first participating preferred stock and common stock. The Corporation will have the right to redeem and retire the 7 per cent. cumulative series prior preferred stock on any dividend date, in whole or in part, at \$120 per share plus any unpaid cumulative dividends.

JOSEPH CROSFIELD AND SONS, LTD.—In their report for the year ended November 30 last, the directors state that after charging all repairs, renewals and alterations, depreciation and insurance, the balance standing at the credit of profit and loss account for the year is £461,806. To this has to be added the balance brought forward from the previous years of £10,551, making a total of £472,357. After payment of the preference dividends, it is proposed to pay a dividend on the ordinary shares at the rate of 10 per cent., placing to general reserve £100,000, and carrying forward £44,857.

BENZOL AND BY-PRODUCTS CO.—The result of the year's trading to September 30, 1927, after making full allowance for depreciation, management and all other expenses, shows a profit of £29,486, and £553 was brought forward. After deducting £1,042 transferred to sinking fund account, there remains a net profit of £28,997, from which there have been paid one year's 6 per cent. preference dividend on April 1, 1927, and a further half-year's 6 per cent. preference dividend on October 1, 1927, absorbing together £23,761, and leaving £5,236, which the directors propose to carry forward.

SOUTHAL BROTHERS AND BARCLAY.—After providing for bad debts, depreciation, income tax, directors' remuneration, a cash bonus of £3,700 to employees and staff, and £2,000 to pension fund, there is a balance of profit for the year ended December 31 last of £53,540. To this must be added £36,562 brought forward, making £90,102. The directors recommend a dividend on the ordinary shares at the rate of 10 per cent. per annum, free of income tax, and a bonus of 1s. 6d. per share, free of income tax, placing to reserve £45,000, and carrying forward £15,852. The annual meeting will be held in Birmingham on March 12, at 12 noon.

RECKITT AND SONS.—The directors announce that the profits for the year ended December 31, 1927, being not less than for the preceding year, they propose to pay a final dividend of 2s. per ordinary share, making, with the interim dividend already paid, 4s. 3d. per ordinary share for the year, as compared with 4s. for the previous year, and also to issue 5 per cent. preference shares, credited as fully paid, from the reserve fund, to holders of ordinary shares of the company in the proportion of one preference share for every four ordinary shares held on March 31. The ordinary share capital of the company is £3,648,000, so that the bonus is equivalent to a distribution of £912,000.

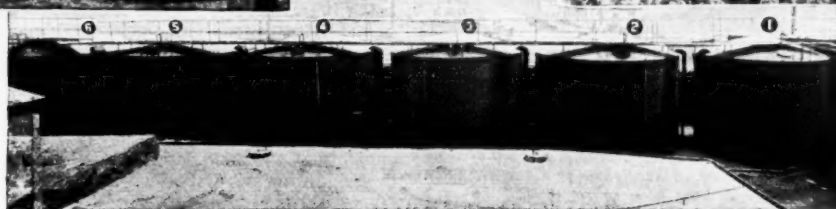
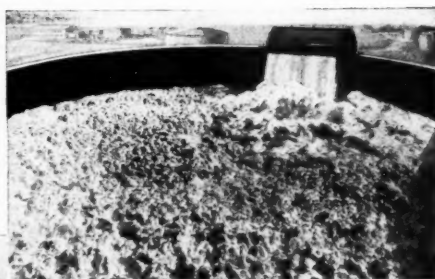
TARFROID.—The statutory report states that the total number of shares allotted is 397,000, viz., 150,000 8 per cent. cumulative participating preference shares of 10s. each, and 180,000 ordinary shares of 1s. each, allotted wholly for cash; 8,500 8 per cent. cumulative participating preference shares of 10s. each and 58,500 ordinary shares allotted as fully paid up. The total receipts to February 13, 1928, in respect of shares issues and sundry items are £82,937. The payments include the purchase of assets and expenses in connection therewith, £24,345, preliminary expenses £12,355, brokerage £738, underwriting commission £4,125, furniture £194, sundry disbursements on trading account, £1,411, purchase of Treasury Bills £4,948. The cash at bankers on deposit and current accounts is £34,821, making a total of £82,937. The preliminary expenses are estimated at £13,000.

Protecting moderate size oil storage tanks

The Foamite Generator System



The standards which form the basis for determining the efficiency of the various parts which go to make up the Foamite Generator System have been firmly established by long successful service records in actual working conditions.



IN the Foamite Generator System, Fire-foam is produced with the Foamite Foam Generator by introducing Foamite Generator Powder into a stream of flowing water. The Generator is located at a distance from the burning tank, and the Firefoam is carried to the tank through fixed piping and is discharged on to the burning liquid from a discharge chamber that is fastened to the tank.

The operation of this system is simplicity itself. A hose connection is all that is needed from the water supply to the inlet side of the Generator, which is set up near the Generator Connection Stand. Another

length of hose connects the outlet side of the Generator to the Generator connection leading to the burning tank. The Generator is then operated in the usual manner. Genuine Firefoam is thus discharged on to the surface of the burning oil in adequate quantity and at correct rate of flow through a discharge chamber similar to those used so successfully with the Foamite (Two Solution) Systems.

Full particulars of the Foamite Generator Installation, which dispenses with the large solution storage tanks, can be obtained from Foamite Firefoam Limited, 55-57 Great Marlborough Street, London, W.1.

Foamite Fire Protection

A Complete Engineering Service

Against Fire

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.]

LU-AL SUPPLY CO., King Street, Liverpool, disinfectant specialists. (C.C., 3/3/28.) £10 6s. 5d. January 11.

WRIGHT, Ernest, "Rosedene," The Glen, Baildon, chemical manure merchant. (C.C., 3/3/28.) £18 1s. 5d. January 11.

Receivership

TUBBS AND CO., LTD. (R., 3/3/28.) T. G. Piper, F.C.A., of Bush Lane House, Cannon Street, E.C.4, was appointed receiver on February 17, 1928, under powers contained in debenture dated January 19, 1923.

Mortgages and Charges

[NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.]

BIO-CHEMICAL REMEDIES, LTD., London, W.C. (M., 3/3/28.) Registered February 15, £2,050 debenture to E. Johnston-Noad, 8, Bloomsbury Street, W.C., solicitor; general charge. *Nil. December 15, 1927.

DEVON CHEMICAL CO., LTD., Newton Abbot. (M., 3/3/28.) Registered February 17, debenture to Bank; general charge. *Nil. December 24, 1927.

MENDIP OXIDE & OCHRE CO., LTD., Cheddar. (M., 3/3/28.) Registered February 16, £2,000 debentures; general charge.

POWELL AND SCHOLEFIELD, LTD., Liverpool, chemical manufacturers. (M., 3/3/28.) Registered February 11, equitable mortgage, to Bank; charged on properties at Liverpool. *Nil. August 4, 1927.

London Gazette, &c.

Company Winding Up Voluntarily

FELL, ANDERSON AND CO., LTD. (C.W.U.V., 3/3/28.) T. S. Fogg, of Fogg, Wynne and Fogg, Oriel Chambers, 14, Water Street, Liverpool, appointed as liquidator, February 22. Meeting of creditors at the Law Association Rooms, 14, Cook Street, Liverpool, March 9, at 2.30 p.m.

Bankruptcy Information

PARCELL, Luther Livingstone, Wold Road, Barrow-on-Humber, soap and disinfectant manufacturer (trading as L. PARCELL AND CO.) (R.O., 3/3/28.) Receiving order, February 22. Debtor's petition. First meeting, March 8, 11 a.m., Official Receiver's Office, St. Mary's Chambers, Great Grimsby. Public examination, April 5, 11 a.m., Town Hall, Great Grimsby.

Key Industry Duty on Lactic Acid

REPRESENTATIONS have been made to the Board of Trade under Section 10 (5) of the Finance Act, 1926, regarding lactic acid which satisfies the requirements of the British Pharmacopœia, and micrometers, including micrometer heads and micrometer measuring machines. Any person desiring to communicate with the Board of Trade with respect to these representations should do so by letter addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, S.W.1, within one month from the date of this notice (February 29).

New Companies Registered

BEATL SALES, LTD. Registered February 28. Nom. capital, £5,000 in £1 shares. General merchants, traders and dealers in goods, produce, machinery, chemicals and all other materials, and in particular articles made from moulding powders manufactured by the Beetle Products Co., Ltd., or others. Subscribers: K. M. Chance, M.A. (Cantab), Radford Manor House, nr. Leamington; J. Josselyn.

EAST LANCASHIRE CHEMICAL CO., LTD. Registered February 28. Nom. capital £30,000 in £1 shares. To acquire the businesses hitherto carried on by the late B. C. Sellars as a chemical manufacturer under the style of the "East Lancashire Chemical Co.," at Edge Lane, Droylsden, Manchester, and as a Portland cement manufacturer under the style of "B. Carrington Sellars," at Fairfield, Manchester. Subscribers: Mrs. D. G. Sellars, Mossbrook House, Fairfield, Manchester; T. C. Sellars, T. Holt.

FLEURET FABRICS, LTD. Registered February 22. Nom. capital, £3,000 in £1 shares. Printers, dyers, finishers, bleachers and stencillers, and makers of and dealers in vitriol, bleaching, printing and dyeing materials. Subscribers: J. T. Porter, Daresbury, Priory Road, Sale, Ches.; J. Cooke.

NORTH BRITISH ARTIFICIAL SILK, LTD., 6, Broad Street Place, London, E.C.2. Registered as a "public" company on February 25. Nom. capital of £385,000 in 345,000 10 per cent. non-cumulative participating preferred ordinary shares of £1 each and 800,000 deferred ordinary shares of 1s. each. To carry on business as manufacturers of artificial fibres and artificial silk by the Viscose or any other process, to acquire the freehold factory and land at Jedburgh, Roxburghshire, known as Canongate Mills, and to adopt agreements (1) with D. Cockburn, (2) with the Stone Industrial Syndicate, Ltd., (3) with the Tokenhouse Securities Corporation, Ltd., and (4) with E. Walls. Directors: E. Walls, A. E. Holt, A. W. Ainsworth, D. C. Cayley, L. L. Bilton, T. H. Evans.

SAVORY AND MORE (1928), LTD. Registered February 24. Nom. capital, £45,000 in 40,000 8 per cent. cumulative preference shares of £1 each and 100,000 ordinary shares of 1s. each. Chemical manufacturers and dealers, chemists, druggists, drysalts, importers of and dealers in medicinal or pharmaceutical, industrial or other articles. Directors: A. L. Savory, 223, Cromwell Road, South Kensington, London, S.W.5, E. J. C. Savory, E. T. Nethercoat, E. A. Umney.

SOMERSET REFINING CO., LTD., 4, Barrow Quay, Bristol. Registered February 20. Nom. capital, £12,000 in 12,000 ordinary shares of 5s. and 9,000 non-cumulative preference shares of £1 each. Manufacturers and refiners of oleomargarine or edible fats, butter substitutes, crushers and extractors of oil-bearing seeds and nuts for obtaining and refining edible vegetable oils and other oleaginous preparations. Directors: V. W. Catchpole, J. Sankey.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

CHEMICALS AND ROCK SALT.—A firm of chemical importers and exporters in Montreal desire to represent, preferably as sole buying agents, British producers. (Reference No. 172.)

SULPHATE OF COPPER, NITRATE OF SODA.—A French firm at Nantes and Angers desires to act as brokers for British firms. (Reference No. 175.)

CHEMICALS, ETC., PRODUCTS FOR THE CHEMICAL INDUSTRY.—A Turin agent with experience of the rubber trade desires to secure the representation of British exporters. (Reference No. 184.)

DRUGS AND INDUSTRIAL CHEMICALS.—A firm of commission agents in Bucharest desire to obtain the representation of British manufacturers. (Reference No. 185.)

Tariff Changes

GILBERT AND ELLICE ISLANDS.—The Drugs and Poisons Ordinance, 1927, provides for the control of the import, export, manufacture, sale or use of drugs and poisons within the Colony.

